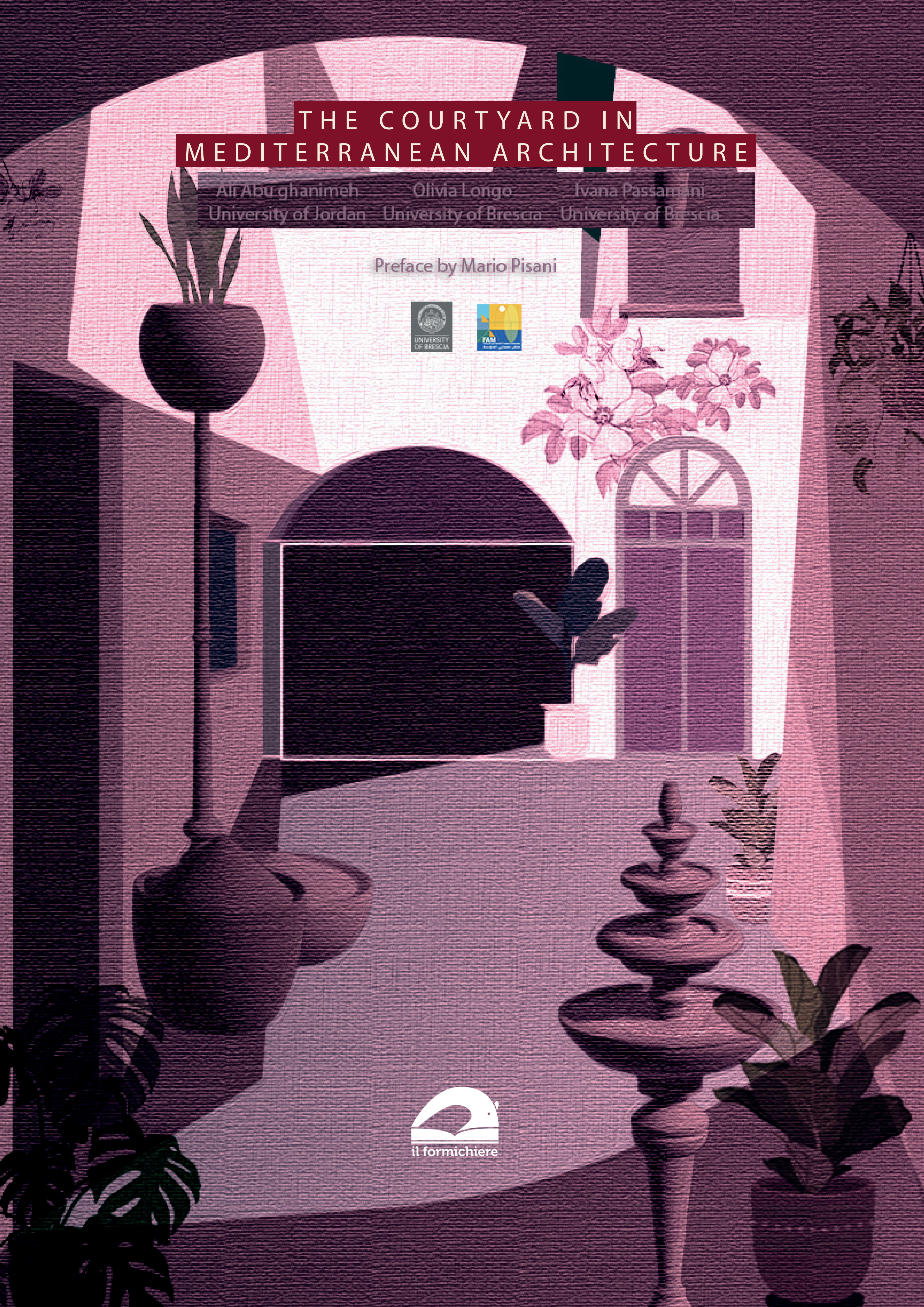


THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

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THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

The court in Mediterranean culture

"There is a Mediterranean Sea, a basin that unites a dozen countries. The men who rattle in the concert cafés of Spain, those who loiter in the port of Genoa, on the docks of Marseilles, the curious and strong race that lives on our coasts, all come from the same family. When traveling in Europe, going down to Italy or Provence, one finds himself with a sigh of relief, ragged men and that intense and colorful life that we know so well. I spent two months in central Europe, from Austria to Germany, wondering where the strange anguish that weighed upon me came from, the deaf restlessness that inhabited me. I recently figured it out. Everyone was always buttoned up to the neck. They didn't know how to let go. They did not know joy, so different from laughter".

Albert Camus, Lectures and speeches [1937-1958]

It is not an easy undertaking to try to introduce, with some considerations that make sense, a volume that collects dense and profound texts such as the one on the settlement in the Al-Amin quarter, in old Damascus, by Abir Arkawi, Omniya Sheikha or that by Abeer Alsoub on courtyards in contemporary Jordanian buildings or by Dana K. Sweidan on Zgharta, a Lebanese courtyard house. The argument holds together the amniotic fluid represented by the Mediterranean (Claudio Magris) and the syntagm expressed by the court which dates back to the mists of time.

Predrag Matvejevic in his Breviary recalls that the expression Mediterranean, the Mare Nostrum, contains infinite meanings, starting from the style of the ports, from the softening of the architecture on the profiles of the coasts, from the material knowledge that underlies the culture of the olive tree and wine. And again, from the spread of religions, from the traces of Arab and Jewish civilization, and before that Phoenician, Greek and Roman; from languages that change over time and space.

The court instead evokes an archetype that appears in the moment of transition from nomadism to sedentary civilization. It manifests itself with the invention of the labyrinth, used to tame the bull and promote its breeding. It therefore represents the rise of palatial civilization and the invention of cities. The courtyard, a space covered by the sky within the perimeter of a building, brings light and air into the rooms facing it (Treccani). The closed place of the fence, in Sicily is called "baglio", an open space where the residence-work structure of the Sicilian agricultural fund takes shape. That structure evokes the Roman courtyard house, but also the closed house of Maghrebi culture and origins, one does not exclude the other, indeed both origins sanction belonging to a single common Mediterranean typology (Francesca Fatta). It goes beyond the representation of a simple architectural element becoming, like the square, a cushion of air, a void that encloses a social and human ecosystem which, throughout history, has played a significant role in the life of the cultures of the Mediterranean basin and continues to do so today (Ali Abu ghanimeh).

In 1954 Alvar Aalto wrote: "For me, Italy is primitivism imbued, in an unexpected way, with an attractive form on a human scale. A square, with perfect proportions, where the poorest man can live, is a better solution than a luxury building". The houses, on the other hand, "are completely closed off from the streets. But inside one opens up to the abundance of fertile lands full of trees, the interior is perfect, welcoming, efficient, functional, on a human scale" (Le Corbusier 1931).
In the space of the courtyard, whose delimitation is not what a thing stops at but, as the Greeks recognized, it is what a thing starts its presence from (Heidegger), it can be seen that people feel closer to the environment , thanks to the presence of gardens that allow nature to enter the houses. The sunlight, the wind, the rain change the appearance of the courtyards thanks to the variation of the shadows

on the elevations which express the natural "mood swings" (Olivia Longo) . These voids transmit natural light into the deepest spaces and guarantee a healthy living and working environment while saving energy, reducing the need for artificial lighting required for the internal parts of the building. They also offer the pleasantness of outdoor environments, to take a break from the daily routine or to carry out social and cultural activities, as occurs in the courtyard of the Sette Cortili of Favara, in Sicily, where the concept of Genius Loci acquires a new voice through the Farm Cultural Park , a cultural laboratory in which creativity, art, architecture and social innovation find expression in a community dimension capable of concentrating and spreading a new collective urban revitalization system (Mariachiara Bonetti).

Ivana Passamani rightly identifies the courtyard with a private square in the heart of the palaces, a protected space and a shell where you can rest peacefully, open the windows and look at the other people who are doing well. The courtyard and the internal environments of a building are intimately connected due to the existence of the portico, which mediates the internal spaces with the external ones: thanks to this architectural filter, the colours, the light, the air, the sounds and the atmosphere they mix.

Of sure interest, for the present time, the example illustrated by Maurizio Oddo of Casa Gilardi, designed by Luis Barragán (Tacubaya, Mexico 1975-1978) marked by nostalgia and awareness of the past, but transfigured into a poetic expression where the The space of the courtyard is transformed into an extreme synthesis of beauty, testifying to the impalpable dimension of the atmospheric effects: lights and shadows, the reflections of colours, smells and even the noise of the wind.

Even Angelo Vecchio talks to us about the present time and does so through his work. For example Casa in Ricceri, immersed in the coastal landscape of the Ionian Sea. It plays on the transparency between inside and outside and refers to the Roman domus, with a compluvium in the center from which rainwater arrives. The interiors revolve around the courtyard, a space shaded by an Archontophoenix alessandra, the palm planted next to the swimming pool which evokes exotic atmospheres.

Unfortunately, as Ola Abdullah and Zeinab Abdullah note, the lack of attention to the study and documentation of the art of designing internal courtyards in Islamic societies has led to the disappearance of a significant part of these, without having preserved any documentation. Therefore, it is essential to focus on the study of this art which is closely related to important cultural and social aspects. It should be emphasized that the culture of Islam has strengthened this type of dwelling as it maintains a close relationship with nature and respects the privacy of the individual dwelling and its neighborhood. The size of the courtyard and its proportions varied greatly from one region to another reflecting the specific environmental conditions of each region, as well as social, economic and urban planning factors. The courtyard house typology can be seen as a "green" project that provides a favorable microclimate in the harsh heat of the desert, helping to reduce energy consumption and representing a truly environmentally friendly building (Wael Al-Masri).

The collection of reflections contained in this volume is very useful. We can also understand it from the thought of L. Ron Hubbard who states: Caring for the planet begins with the backyard of one's home.

Mario Pisani

Why is this book "the courtyard in the Mediterranean architecture"?

I've always wondered and continue to wonder about the significance of this architectural element, the courtyard, which still exists in our daily lives despite all of the rapid changes and technological advancement.

I spent my childhood playing in the house of my grandfather Salih al-Mustafa al-Tal and my virtuous mother-in-law Khaldiya, and this house was designed in the Levant style, with its beautiful courtyard surrounded by rooms and iwans with stone facades mostly in white and black, known as ablaq, and of course we find mulberry trees, prune trees, and many other Flowers, plants, and of course water is available. During my studies, research, and visits to Arab and European cities in the Mediterranean, my interest in the courtyard grew as a result of the variety of my observations and coexistence with many of its uses, forms, and different types, with mostly similar details that might differ slightly in color, material, or formation, but with the same idea, and it has persisted throughout the ages.

The provision of green areas, in addition to the elements of water and sky, which are reflected on the floors of various materials, colors, and shapes through paving decorated with plant or geometric shapes, which shows interaction, environmental harmony, and the privacy in which they are available, makes the courtyard an essential and important element of the Mediterranean basin house. The courtyard is more than just an architectural feature; it is an architectural, engineering, environmental, social, and human space that has played a significant part in the lives of Mediterranean basin cultures throughout history and continues to do so now. Meeting and gathering, a key element to soften the mood, an element of lighting, an element that provides privacy, comfort, and cohabitation in a pleasant setting, and, of course, its openness to the sky creates varied impressions at different times of day and night.

The preparation of this book (The Courtyard in the Mediterranean Architecture), which I began with my colleagues Olivia Longo and Ivana Passamani, is an attempt to remind us of the significance of studying our architecture and shared history in the Mediterranean basin region, that brings us collectively as Arab and European peoples who have lived alongside one another, and will always live in close societies that are always looking for Elements, themes, and values that bring them together.

Ali Abu ghanimeh, University Of Jordan
Amman- Brescia, 26 May 2023

Advantages and dangers of the courtyard in the architectural and urban design

For the discipline of architectural and urban design the courtyard plays a fundamental rule because it can regulate the relationship between the interior spaces and the external ones, becoming a multifunctional filter-space.

Its identity gets meaning from the walls and enclosures which are around it, so they are its facades and can also influence the character of the courtyard, because they represent the shell of the house that delimits an intimate place, in some case a sacred space.
From the point of view of visual perception, between the outdoor and indoor spaces the courtyard has the power to create transparency or opacity, continuity or discontinuity because it can be a large threshold made by a succession of filter-spaces which organize the architectural system of semi-public and semi-private spaces, connecting intimate home spaces with the urban ones of the town.

In the courtyard people can feel very closer to the Nature (ancestral people's need) also through small piece of garden. Nature can also entrance into the house through the weather that expresses its "mood swings" in the courtyard using the light of the Sun, the wind, the rain, etc. Sun light changes the aspect of the courtyard using the movement of the shadows on its facades, shapes, windows and doors.

The presence of the symbol of the Mediterranean Sea, the Water (source of life), increases the power of the previous described elements adding sound and vision effects.

I could continue to remember the numerous qualities of the courtyard that we can find in many papers of this book, but I am also very interested in the future of the courtyard in Architecture. In fact, it could be a precious element for a sustainable architectural design, or it could be a source of problems if the designer does not think about the connection between it and all the other characteristics of a determinate functional programme in a specific (urban or natural) context, where the building will be built. All these important factors can be destroyed by an optimistic architectural design that does not consider the possible abandon of this particular place, very important in the ancient people habits but fewer used by contemporary people, more and more attracted by the virtual world.

When professor Ali Abu ghanimeh proposed me to edit this book, I was very happy and curious to read this various and very interesting collection of scientific points of view on this important core element of the architectural and urban composition.

Olivia Longo, University Of Brescia
Brescia, 11 July 2023

A private square in the heart of the buildings

“The courtyard in Mediterranean architecture” presents a very interesting collection of papers written by professors and researchers from many different countries and cultures. The focus - the courtyard – is an ancestral architectural element that is used both in ancient buildings, houses, castles and monasteries, and in contemporary era, for example in residential architectures (apartment buildings or villas).

We can consider this space as a “private square” in the heart of a building, a protected and shell space where we can take a break, rest easy, open the windows and look other people feeling good. The courtyard and the interior rooms of a building are intimately connected due to the existence of the portico, which mediates the internal spaces with those outside: thanks to this architectural filter the colours, the light, the air, the sounds and the atmosphere mix together. Darkness and light play with the architecture, creating always different shadows.

The courtyard follows the history of humankind and of its way of living, starting from the Domus of ancient Roma, which develop around this space. The space itself offers some facilities, like the water in the fountains or some plants in the garden. This element takes on a new interpretation in the architecture of the convents: from “courtyard” it becomes “cloister”, a square or rectangular space that, with different sizes and features, enriches the architectural complexes. Greater cloister, minor cloister, service courtyard offer the friars spaces to meditate, walk, cultivate...

If cloister measurements are always based on geometric and proportional ratios, for example often designers used Aurea proportions, even the courtyard of the Mediterranean architecture have geometric proportions. Drawing therefore remains the most effective way to investigate and understand the reasons and the structures of these architectural spaces.

Geometric and proportional analysis helps us to capture the designer’s idea, as the images and the drawings of this book demonstrate. They lead us on an inspiring journey in the Mediterranean basin countries and cultures: I like to thank all the authors for their papers, and at the same time I’m very grateful to Ali Abu ghanimeh for giving me this opportunity to reflect on this special space, taking new inspirations and ideas from a common cultural basin.

Ivana Passamani, University Of Brescia
Brescia 10 luglio 2023

Muath Muayyad
Book cover art & creative designer



by Night Cafe, depict artistically, a sensational mediterranean
interior courtyard, enclosed sides by tall white stucco walls

01

A REVIEW ON USING INNER COURTYARDS IN JORDANIAN CONTEMPORARY BUILDINGS

ABEER ALSOUB

Abstract

The courtyard is one of the traditional architectural forms in a basin of the Mediterranean which contributed to determining the privacy and suitability of the environmental and social aspects as well as its role in regulating the spatial relations between the mass and the vacuum and other functions. The paper shows a group of contemporary Jordanian buildings designed with a courtyard, in different shapes and functions, which often take up a large area of the building. The study seeks to explain if using the courtyard in these buildings is active or not. The paper depended on a descriptive-analytical approach, by studying and analyzing a number of case studies in Amman, Jordan.

Keywords

Traditional courtyard, internal courtyard, Architecture.

Introduction

Courtyards were found in residential, religious architecture, and public architecture in different civilizations across time, especially in tropical and warm regions. A courtyard is a form of construction that has had a presence since humans started to build their houses. (Bridson, 2012). Through thousands of years of different courtyard housing, planning demonstrated, Sumer and Pharaonic Egypt are recorded as the oldest culture of the Middle East, which hold the oldest example of the courtyard (Ayhan & Neslihan, 2011). Later on, this type of building was seen in western cultures such as Greek and Rome (Abdulac, 1982).
In Jordan, there are many expressions for the use of the courtyard in many cities and villages in the old houses and buildings, it spread widely in the city of Irbid, perhaps due to its proximity to the city of Damascus, which is distinguished from others, which is known as the Damascus houses.
The courtyard is a space which is located in the middle of the buildings and is determined by rooms and walls or architectural elements around it. Courtyards could

take several basic forms: circular, triangular, trapezoidal, or composite of these forms, but the square and rectangular shapes are often in use. The courtyard sizes are determined by their length, width, and height. Its location may be in the center of a building or in the corner or one of its sides (i.e., it is surrounded by two, three, or four sides). Courtyard is defined and recognized by the surrounding architectural elements of walls, doors and window openings, corridors, arches, and other elements, each of which has certain building materials and finishings.
Many profits of courtyards cited by scholars to define courtyard social and ecological functions. These benefits are psycho-social benefits, cultural benefits, religious benefits, economic benefits, climatic benefits, and architectural benefits.
Courtyards generally function as a center in buildings and houses, connecting the different areas and functions. The significance of the courtyard by it is the central position enclosed by various landscape and tree elements, which play an important role in our social and working life (Meir, 2000).

Objectives

The paper aims to show various examples of contemporary Jordanian buildings designed with a courtyard in different shapes and functions and to explain if using the courtyard in these buildings functionally is active or just for reviving the concept of the traditional courtyard in contemporary buildings.

Methodology

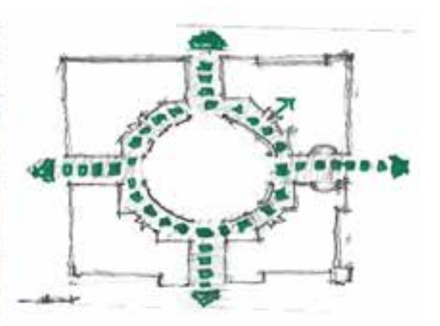
The paper depended on a descriptive-analytical approach, by studying and analyzing a number of case studies in Amman, Jordan and making comparisons between them.

Case studies

1. Amman city hall

Architect: Jafar Toukan with Shbeilat-Badran's office
Location: Amman. Ras Al Ain





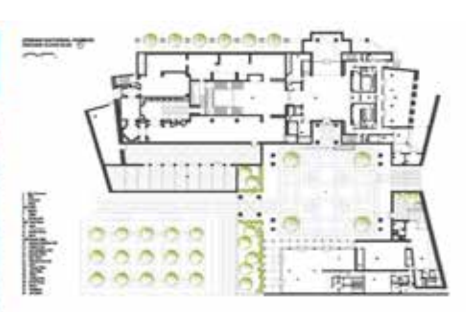
1: Amman city hall .source: https://www.group-cc.com

The building is designed in square form, divided into four equal parts, in the middle there is a circular courtyard, The courtyard is distinguished by its geometric shape and

differs from other traditional courtyards, the four parts separating with wide corridors leading from the outside to the center of the circular square, these parts are connected by glass corridors on the upper floors. The city hall building houses the Mayor's offices, municipal council chambers, meeting rooms, staff offices, and an auditorium, while the ground level holds public spaces including a café, exhibition area, and reception. This project won the award of the Arab cities organization in 2002 due to its unique design details that combine Islamic and Arab contemporaneously (ALmasri,2005).

2- Jordan museum
Architect: *Jafar Toukan*
Location: Amman. Ras Al Ain





2: Jordan museum .source: https://www.group-cc.com

The National Museum is Jordan's central and largest museum and also a landmark building providing visual links to Amman City Hall. The museum contains Main Exhibition Gallery accommodates history, culture, and royal exhibition fields. In addition to Temporary Gallery which is often used the courtyard as an open temporary gallery, in addition to its function as a reception and welcoming space for visitors. The courtyard takes a geometric shape (squire) with a large area to be suitable for all supposed activities and functions.

3 – villa Al-Tabaˈa
Architect: Ayman Zuaiter
Location: Amman. Abdon





3: villa Al-tabaˈa. Source: (tibahjo.com)

The form of the plan is derived from site geometry and functional relations. The Courtyard space was freed from the formality of the rectangle, the designer focused on two basic ideas for the courtyard: the first is the courtyard as an element that performs a social function by coordinating the contents of the courtyard in a way that allows the occupants of the house to practice social activities in the open air, in the same time enjoy in complete privacy. The second is an environmental element that is related to the microclimate of the house. This is represented by the integration of green plants, trees, the water element, and various tools for shading, as the courtyard in this case acts as a container to preserve the cold air at night and to provide the possibility of cooling the internal spaces by opening the overlooking windows of the courtyard.

4- The Queen Rania Foundation For Education and Development

Architect: Ayman Zuaiter
Location: Amman. Jabal Alnaser





4: *The Queen Rania Foundation for Education and Development*.source: (tibahjo.com)

The organization is formed from the interior courtyards that acted as an organizer of spaces and internal circulation and played as a starting point from the entrance towards the interior, so the shape and proportion of the courtyard changes based on the nature of use.
In the center there are four courtyards:
- The first courtyard is used as a reception hall that is covered with a glass roof.
- The second courtyard is used as a transition area to the rest areas.
- The third courtyard is used as an activity area for children, the
Offices are distributed around it.
- The fourth courtyard is used as an area for artistic activities and is associated with the outdoor squares.

Analysis and discussion

The shape, function, and area of the courtyard are different in each case study. In terms of shape, the designer used the circular courtyard in the Amman City Hall and the square form in the Jordan Museum and the Queen Rania Foundation, While the courtyard was irregular form in the Villa of Al-Tabaa, there were no determinants to

choose the shape of the courtyard in each case, as the choice of shape depends on the general composition of the building and on the desired function.(Table.1)
The courtyard area was approximately 20% of the building area for the Amman city hall, 15% of the Jordan Museum, 23% of the Queen Rania Foundation, and 12% of the Taba'a Villa.
In terms of function and use, there was no effective role for the courtyard in the City Hall, as it is rarely used and was designed to be parallel to the historical axis of the city of Amman. At the same time, there was an influential role for the courtyard in the Jordan Museum, as it was a major element in circulation and linking the parts of the project, in addition to benefiting from it by holding open temporary exhibitions. (fig.5)
The courtyard in the Queen Rania foundation is designed as an organizer of spaces and internal circulation, in addition to using it to hold various events and activities (fig.6), on the other hand, there was reliance on it to provide lighting and ventilation to the surrounding spaces indirectly through the corridors which surrounded it. As for the courtyard in Villa Al-Taba'a, there was no great dependence on it for inner circulation, but it acts as a social function by coordinating the contents of the courtyard in a way that allows the occupants of the house to practice social activities in the open air, in the same time enjoy in complete privacy. The second is an environmental element that is related to the microclimate of the house which acts as a container to preserve the cold air at night and to provide the possibility of cooling the internal spaces by opening the overlooking windows of the courtyard.



5: Jordan museum .source: https://www.group-cc.com



6: *The Queen Rania Foundation for Education and Development*.source: *https://www.qrf.org*

Table 1 . comparison between case studies

Courtyard using	Courtyard importance	Courtyard form	
Rarely used	designed to be parallel to the historical axis of the city of Amman		**Amman Hall**
holding open temporary exhibitions	A major element in circulation and linking the parts of the project		**Jordan Museum**
A place for social communication between family members	*Incres the social communication between family members. *an environmental element		**Villa Tabba**
Play area for children and a movement center for the surrounding spaces	*acted as an organizer of spaces and internal circulation. *Achieving the required privacy for each section through indirect circulation from one yard to another.		**Queen Rania Foundation**

Conclusion

The study showed some examples of reviving the inner courtyard in Jordanian contemporary architecture which is one of the traditional Arabian elements in the Mediterranean.
The study showed the different shapes and functions of the courtyards that were found in the local case studies, in addition to the difference in building types that used the inner courtyard, where the use of the courtyard was not limited to residential buildings.
The majority of courtyards case studies were active and used either functionally, socially, environmentally, or spiritually...etc.
Although the courtyard takes cost and a large area from the building, the paper recommends making it an essential element of our building for its importance and multifunctions.

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Sitography

https://www.group-cc.com

https://www.tibahjo.com

https://www.qrf.org/ar

“The courtyard is a canvas waiting to be painted with light, color, and life.”

- Unknown

02

AN ANALYZING STUDY OF THE EASTERN ROMAN MEDITERRANEAN HOUSE: CASE STUDY, THE PROPERTY NO.286 IN AL-AMIN QUARTER, OLD DAMASCUS, SYRIA

ABIR ARKAWI, OMNIYA SHEIKHA

Abstract

This article presents the main features of the Eastern Mediterranean house during the Roman period. In addition to that, it reveals the differences between the Roman houses in this region and the typical Roman house by studying case studies in Syria and Palestine.

Keywords

The Eastern Roman Mediterranean house, Typical Roman house, The Roman Empire, The Mediterranean Basin, Courtyard, Atrium, Triclinium, Mosaic.

Introduction

When it is said the region of the eastern Mediterranean during the Roman period, it means Macedonia including Greece, Turkey, most of southwest Asia including Syria, and Egypt.

The existence of The Roman Empire in The Eastern Mediterranean

The history of The Roman Empire can be divided into three distinct periods: The period of kings (625-510 BC), The Republic of Rome (510- 31 BC), and The Imperial Rome (31 BC-AD 476). During the Imperial Rome period precisely, by AD 117, the Roman Empire had reached its maximum extent, spanning three continents including Asia Minor, northern Africa, and most of Europe. (Puhrmann 2014)

Archeological evidence indicates that the existence of the Roman Empire in the Eastern Mediterranean started from the early stages of establishing the Empire. Moreover, this region was the last place for the Roman Empire which in turn makes it a good place to study the development of the Roman house design through all periods.

The maps below illustrate the expansion of the Empire in the Mediterranean Basin during different periods.



Figure 1 Roman Republic (510 BC – 40 BC)



Figure 2 Imperial Rome (20 AD - 360 AD)



Figure 3 Western Roman Empire (405 AD – 480 AD)

& Eastern Roman Empire (405 AD – 1453 AD)



Figure 4 Eastern Roman Empire (405 AD – 1453 AD)

Typical Roman house

In general, there were two types of Roman houses in the Mediterranean Basin depending on whether residents were wealthy or poor. Most ordinary people in the Roman cities lived in apartments called insulae which is a Latin word means “island”. While the wealthy lived in single-family homes called Domus of various sizes depending on how rich they were.

Insulae

This shape of houses was found basically in The Western Mediterranean Sea Basin with some exceptions in the East. It was generally three to five stories high and housed from 30 to 50 people, and the ground floor of the insulae often housed shops and stores that opened out to the streets.



Figure 5 Insula of Diana, Ostia Antica

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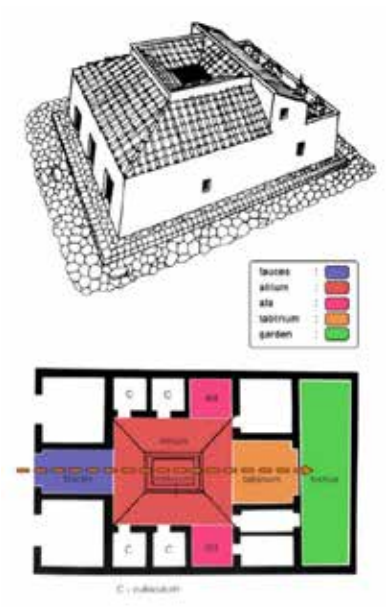


Figure 6 The typical Roman house with a garden

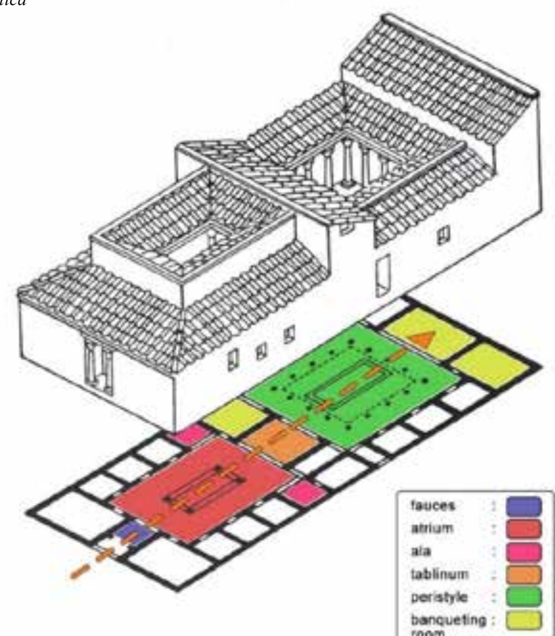


Figure 7 The typical Roman house with a peristyle

Domus

This shape of houses was found in both The Western and The Eastern Mediterranean regions and since the shape of the house depended on the wealth of the inhabitants, the research studies two typical forms of Domus. In both cases, it could be called Villa

- To conclude, here are the main spaces in the typical Domus:
- **Fauces** – The entryway of the house.
- **Atrium** - An open room where guests are greeted. The atrium typically had an open roof and a small pool that was used to collect water.
- **Ala** - the open rooms on each side of the atrium. Those rooms are mostly rectangular.
- **Tablinum** - The office or living room for the man of the house.
- **Peristyle** - an open garden inside the house surrounded by a continuous porch formed by a row of columns.
- **Banqueting room** – commonly described as a Triclinium that is the dining room. This was often the most impressive and decorated room of the house to impress guests that were dining over.
- **Cubiculum** - The bedroom.

The Eastern Roman Mediterranean house

The Eastern Roman Mediterranean house, also known as the Byzantine house, was a type of dwelling that was predominant in the Eastern Mediterranean region during the Byzantine Empire. It was characterized by a unique architectural style that incorporated elements from both the Roman and Byzantine cultures.

The Eastern Roman Mediterranean house was typically constructed using locally available materials such as stone, mud bricks, and timber. The architecture of these houses was characterized by the use of arches, domes, vaults, and intricate mosaic decorations. These features were adapted from Roman architecture and modified during the Byzantine era to create a distinct style that was unique to the region.

One notable feature of the Eastern Roman Mediterranean house was the use of courtyards. Typically, these courtyards were situated at the center of the house, and all rooms in the house opened out onto it. The courtyard served various purposes, including providing natural light and ventilation to the rooms, creating a central gathering place, and providing a private outdoor space for the family. The courtyard was often decorated with fountains, plants, and mosaic tiles, making it an aesthetic feature of the house. Another notable feature of the Eastern Roman Mediterranean house was the use of the domed roof

Another notable feature of the Eastern Roman Mediterranean house was the use of the domed roof. The dome was a functional feature that allowed for more significant interior spaces to be created without the need for additional supporting columns. The dome was also a significant aesthetic feature, with intricate mosaic decorations often covering its interior surfaces.

The design of the Eastern Roman Mediterranean house was influenced by the cultural and social activities of that time. The house served as both a family home and a space for social gatherings. The courtyard, in particular, played a significant role in social interactions, providing a space for families to entertain guests and socialize with neighbors

The architecture of the Eastern Roman Mediterranean house also reflected the society's religious beliefs, with many houses featuring small chapels or prayer rooms. Christian symbolism was also incorporated into the mosaic decorations, with crosses, saints, and biblical scenes often depicted.

The Eastern Roman Mediterranean house was also significant in the region's history, serving as a reflection of the political and economic changes that occurred during the Byzantine era. As the Byzantine Empire expanded and became more prosperous, there was an increase in architectural patronage, leading to the construction of more elaborate and decorated houses.

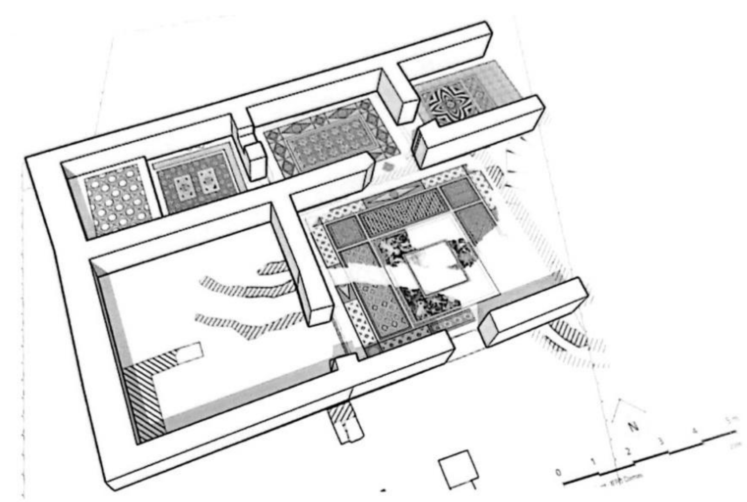


Figure 8 Restitution of the mosaic floor of the Roman house in Cyrrhus, Syria. It is believed that the walls were also decorated with mosaics

Houses of the wealthy in Roman Galilee

Wealthy people, of course, owned rural properties, but these were not well-equipped villas for their owners, but for the tenants of the land.

In these areas, the wealthy expressed their social status through luxurious furniture and the mosaic on the walls and floors. Despite their rich architecture and decorative repertoire, these houses contained the same architectural vocabulary as used in the rest of the country villas in the Empire

The images below show some villas in Roman Galilee, Palestine

Sepphoris, House of Dionysos

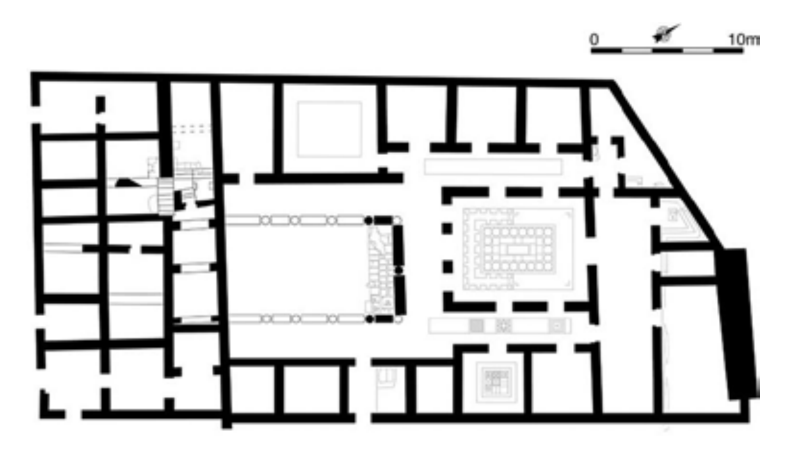


Figure 10 Sepphoris, House of Dionysos, plan, c. 200 CE.

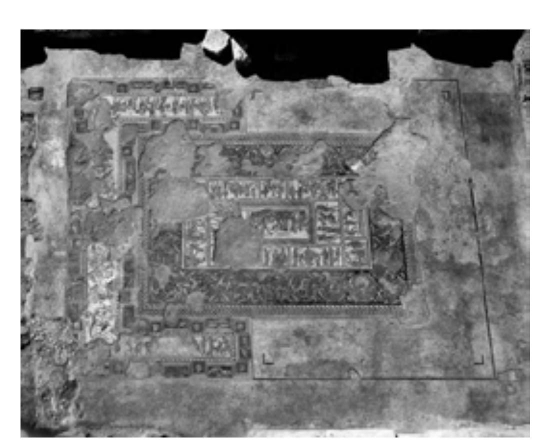


Figure 9 House of Dionysos, overview of the Dionysiac mosaic of the triclinium (Dining room).

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Seleucia Pieria, House of the Drinking Contest

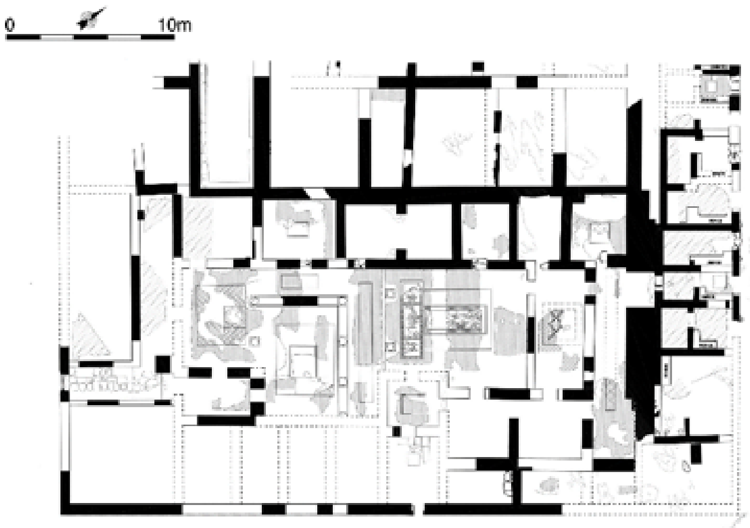


Figure 11 seleucia piera, house house of the drinking contest, early third century CE, plan

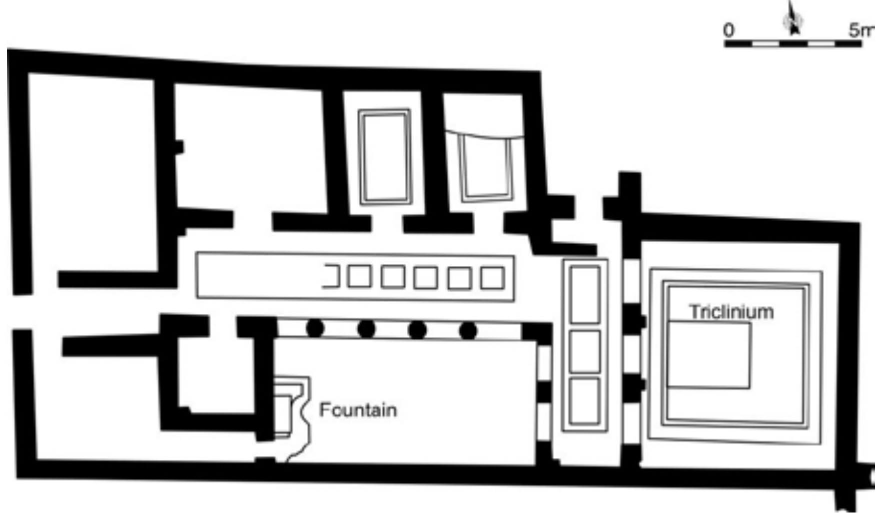


Figure 12 Sepphoris, House of Orpheus, plan, second half of the third century CE (first phase).

Relying on the previous plans, the main features of Eastern Roman Mediterranean houses include:

- Mosaic floors: Intricate mosaic floors were a common feature in the wealthiest homes. These intricate designs often depicted scenes from mythology or nature. Some houses' walls were decorated in mosaic the same as the floors.
- Inner courtyards: Inner courtyards were a central feature in many houses, often serving as a place for family gatherings and entertaining guests.
- Roman arches: Arched doorways and windows were a popular architectural feature, often adding a sense of grandeur to the design.

-
- Colonnades: Colonnades were used to define outdoor spaces and provide shade from the sun.
- Water features: Fountains and other water features were popular, as they helped to cool the air and added a sense of tranquility to the space.

The Property no.286 in Old Damascus, Syria

It locates near Straight Street (also called Decumanus in the Roman era) in Al-Amin quarter. The property gets its importance basically from its location because the first excavation of the property revealed its strong relationship with the main street in the Roman period which is Straight Street (Decumanus).

The maps below show the location of the property on three different scales.

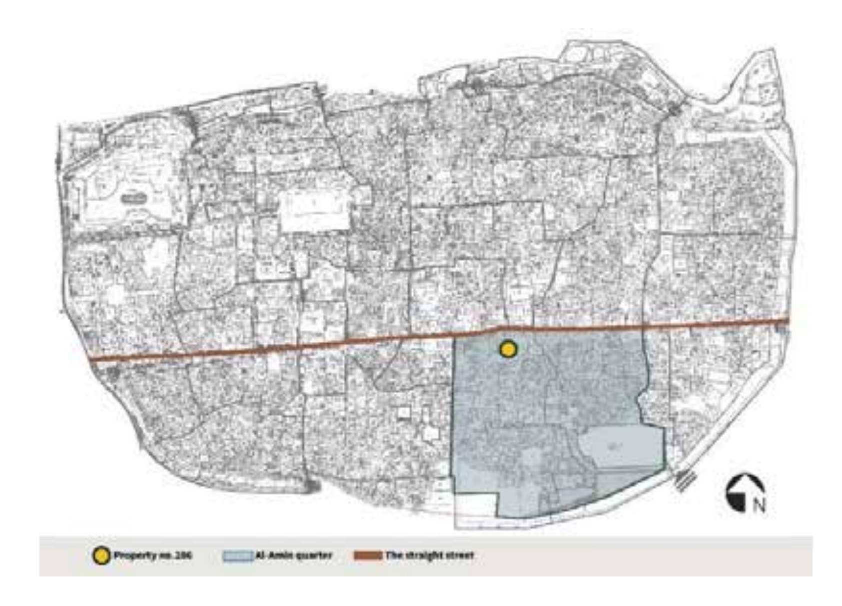


Figure 13 the location of the property in relation to the old city of damascus



Figure 13 The location of the property in relation to Al-Shallah Avenue



Figure 14 The location of the property in relation to its surroundings

The main parts of the property

the property is divided into three main parts according to the time periods:

1. The new residential building, which is the newest part of the property, dates back to the 1960s and is a four-story concrete building.
2. Ruins of the old Damascene house where a Jewish family lived and it returns to the existence of the Jews' period in Old Damascus.
3. The Three historical Basements are the most important part of the property where the research investigates, and that is because they contain different architectural elements that return to different periods which are Roman, Byzantine, and Islamic periods.

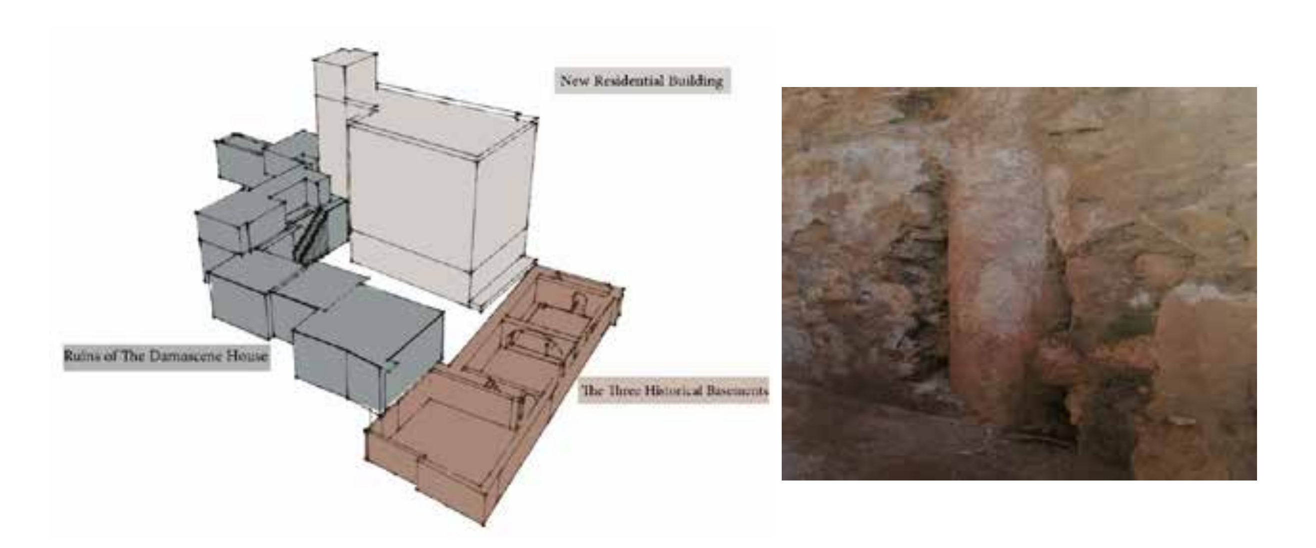


Figure 15 An illustrative drawing of the three parts of the property

Figure 17 The mosaics in the Southern Basement in front of the opening

The Three Historical Basement in the Roman Period

The archeologists found three basements on three different levels. Each basement has different elements that referred to different periods. According to the preliminary excavation results, in the northern basement, there is a huge Roman column that is similar in dimensions to the other Roman columns in the old city but it's not in its original place. In the middle basement, precisely in the far north of this basement, there are the clearest Roman parts which are two small rooms near each other. It's supposed to be small stores before entering the Roman house and what supports this idea is the presence of mosaics in the Southern Basement on the same level near an opening in the Roman wall that was probably a door to an important room in the house, while the Southern Basement supposed to be the roman House's courtyard, especially with all the mosaic pieces that were found on its sides. This opening was covered later maybe in the late Byzantine era by using smaller stones than the Roman stones.



Figure 16 The Roman Column in the Northern Basement.

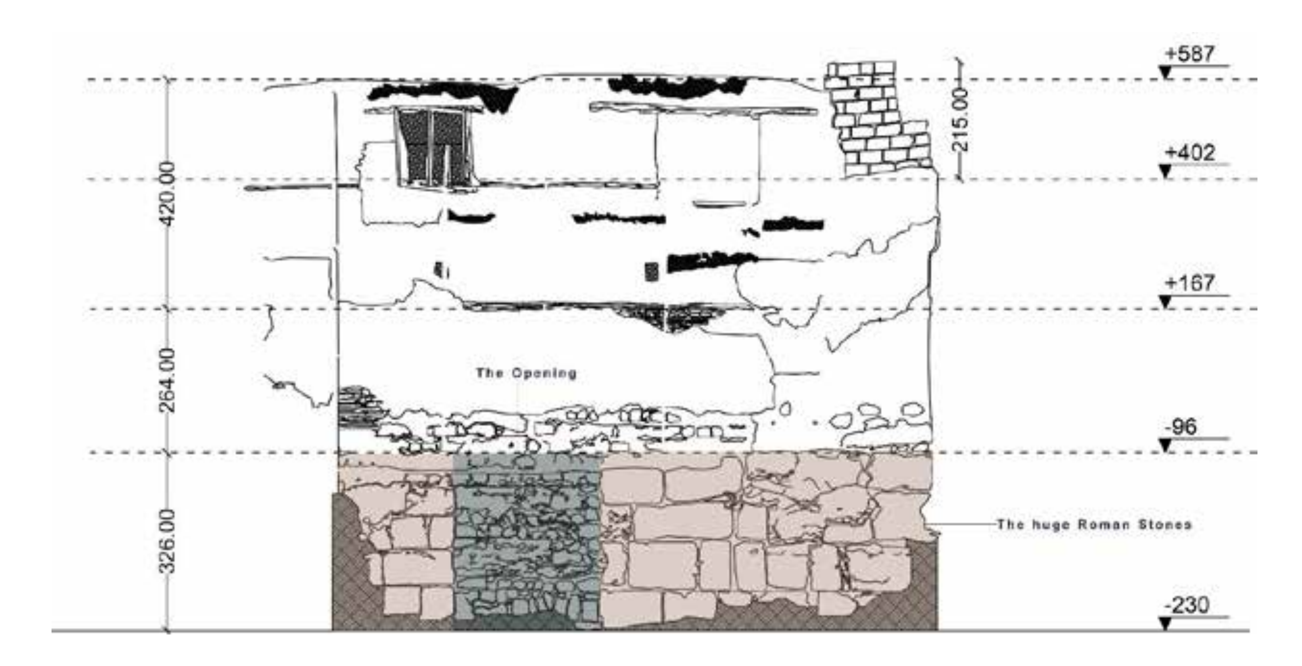


Figure 17 An illustrative drawing of the Opening in the eastern wall of the Southern Basement



Figure 18 The Opening in The Southern Basement

The Two Small Rooms in the Middle Basement

The first assumption made by the researchers is that these two small rooms were commercial stores. This hypothesis was built relying on several indicators, the first of which is the dimensions of the two rooms, as the dimensions of the left room are 215 x 175 cm, while the dimensions of the other are 165 x 175 cm. These dimensions make the two rooms qualified to occupy the function of shops. The second indicator is the distance between the central courtyard and those rooms, leaving a good amount of space for the entrance to a Roman house.

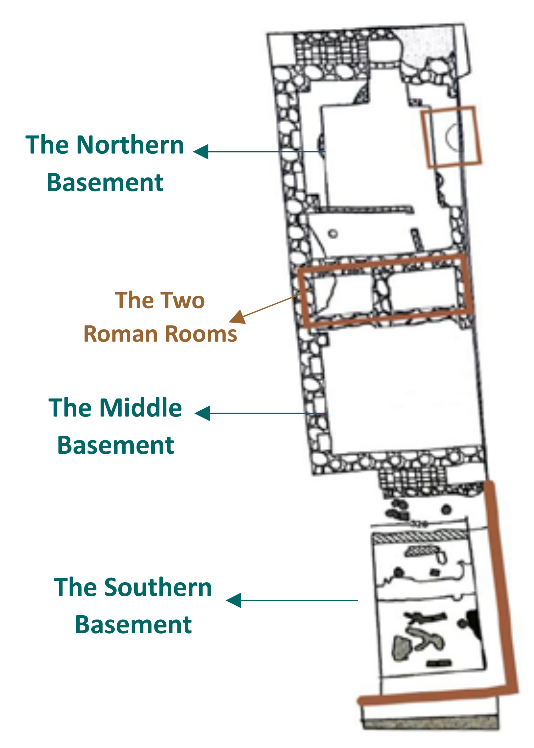


Figure 19 A plan illustrates the Three Historical Basements, while the Two Roman Room appears in the middle one.



Figure 20 The Two Roman Rooms in the Middle Basement

In conclusion, there was commercial activity in the place near the residential spaces. Maybe those two functions were completely separated or somehow, they were connected. But according to the typical forms of Roman houses in the Mediterranean Basin, we do not have an exact similar form to this case and maybe it can be concluded that the only certain fact about this site is that it has critical questions, whose answers will surely add new perspectives to our comprehension about the form of the Eastern Roman Mediterranean Houses. Therefore, the site needs more excavation than what already was done in 2010.

Generally, the architectural design and construction of Eastern Roman Mediterranean houses were greatly influenced by cultural, historical, and natural factors, which varied based on geographic location and this fact was indicated by all examples that were shown in this research. In addition to that, the use of courtyards as central spaces in Roman houses was so basic. In the end, despite the simplicity of those houses' design, they included features that did not exist before, such as mosaics and a water fountain in the courtyard.

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03

COURTYARD AS A TOOL FOR REHABILITATION OF THE HISTORICAL CITADEL CASE STUDY (QAYET-BAY CITADEL- ROSSETTA)

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Abstract

Rehabilitation of medieval citadels is essential for preserving and strengthening a region's cultural and architectural legacy. As a case study, this research article investigates the function of the courtyard in the rehabilitation of the Qayet-Bay Citadel in Rosetta, Egypt. The paper covers prior studies on the restoration of medieval citadels, the relevance of conserving and restoring architectural and cultural significance, and the courtyard's involvement in these efforts. The restoration project of the Qayet-Bay Citadel is evaluated, including its objectives, methods, and outcomes, with an emphasis on how the courtyard was utilized to achieve preservation and enhancement. The research suggests that the courtyard can play a significant role in the rehabilitation of ancient citadels, serving as a focal point for preservation and development and enhancing tourist flow and access to various parts of the complex. The research indicates that future rehabilitation initiatives of medieval citadels should prioritize the courtyard as a fundamental aspect.

Keywords

Citadel court yard – rehabilitation – heritage resilience – heritage conservation.

1. Introduction

Citadels is constructions that have served several purposes throughout history, including as defense, habitation, and administration. They have had a significant impact on the architectural and cultural legacy of numerous locations across the globe (Darwish, 2017).

Citadels have strong walls, towers, and gates. These defensive constructions often had moats, drawbridges, and bastions. Arches, domes, and ornate carvings in many citadels expressed the community's cultural and aesthetic values.

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Citadels have played a crucial role in the defense of towns and areas from invaders and foes due to their defensive value. They have been constructed to withstand siege and protect the inhabitants of the inhabit (Gonnella, 2008). Typically, citadels were constructed to defend crucial places, such as ports and trade routes, and to regulate the flow of people and products into and out of the region.

Globally, citadels are an integral component of the architectural, cultural, and defensive legacy of numerous places. They have played a crucial role in influencing the history and evolution of many societies and continue to be a key cultural and architectural resource today.

1.1. research goals.

This research paper's objective is to undertake a comprehensive assessment of the function of the courtyard in the rehabilitation of citadels. The purpose of this study is to assess the efficacy of incorporating the courtyard into preservation and enhancement initiatives for the cultural and architectural significance of these monuments. The research will focus on utilizing the courtyard as a tool for the protection, restoration, and enhancement of these significant cultural and architectural heritage monuments. The research will provide a new approach to the rehabilitation of the Qayet-Bay Citadel in Rosetta, based on the historical significance of this Citadel. This research will help us understand the courtyard's role in historical Citadel's rehabilitation.

1.2. Research question.

Understanding the potential of the courtyard in the rehabilitation of historical citadels and its efficiency in preserving and enhancing the cultural and architectural significance of these structures is the focus of this study. The research intends to investigate and provide answers to the following questions:

1. What current techniques and methods are used to rehabilitate courtyards in historical citadels?
2. What are the best practices and lessons learned from past rehabilitation projects that incorporate the courtyard, and how can they be applied to future projects?
3. How does the use of the courtyard in Qayet-Bay Citadel be the decoding of the development projects in Burg Rashid village?

This study will analyze the courtyard's role in citadel rehabilitation and its ability to preserve and enhance their cultural and architectural significance.

Research methodology.

The research methodology can be divided into two approaches: through a theoretical approach representing methods used in rehabilitating courtyards in historical citadels,

the reasons for rehabilitation of historical citadels, challenges, and limitations of utilizing the courtyard in the rehabilitation process of historical citadels will be emphasized. In addition, the implemented strategy will reflect a fresh vision for employing the courtyard of the historic Citadel in restoration initiatives to preserve the Citadel and improve the surrounding community.

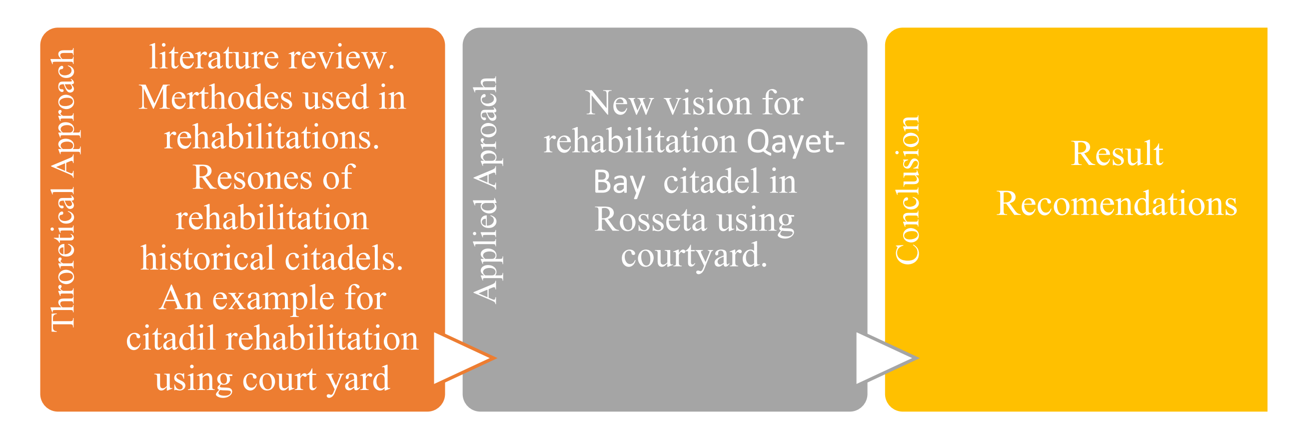


Fig. (1) research methodology.

2. Literature Review

Historical citadels are preserved for their architectural and cultural value. Rehabilitation has limited money, a manpower scarcity, and the need to reconcile preservation and modernism, according to many researches. "The Courtyard Landscape Changes of Karim Khan Citadel (Arg) in Shiraz based on Historical Photographs & Documents" (Asadpour, 2020)describes his rehabilitation and landscaping of the Zandieh Complex's largest brick building, the Karim Khan Citadel. The report suggests using the courtyard to restore and preserve the Citadel's landscape and cultural and architectural relevance.

"Urban and Tourism Development Projects for Cities Citadels (Aleppo and Erbil)" (Omar Khasro Akram, Sumarni Ismail, Daniel José Franco, 2016) created a theoretical framework for Aleppo and Erbil Citadel development plans. These citadels were chosen based on their urban and cultural similarities and Aleppo's Citadel's status as a universal model with many beneficial elements in the development plan.

Erbil Citadel Rehabilitation and the Presence of Its Emergence History examines how the revitalization project affects the surrounding districts. Their historical and geographical proximity may justify the integrative revival of Erbil Citadel and its buffer zone. The study claims that the Citadel and the lower surrounding districts are complementary, not repetitious, historically and urbanely (J. A. Martin-Caro , I. Paniagua, 2015). Studies have shown Preserving and renovating citadels and incorporating locals and stakeholders are crucial. Money, skilled labor, and a conservation-modernization balance are also stressed in the research.

2.1. Importance of citadels preservation and restoration.

Citadel restoration has many benefits. First, citadels represent builders' and users' cultures. These buildings can tell descendants about their forebears. Second, citadels have historic architecture. Restoring and preserving these architectural marvels (Gonnella, 2008). Thirdly, citadels attract tourists, boosting local economies. Historic preservation attracts tourists.

UNESCO's World Heritage Convention preserves cultural and natural heritage sites of global significance (David Gandreau, Sébastien Moriset, 2013). It protects citadels. Citadel preservation demands community involvement. Locals know the Citadel's history. Preserving and restoring the stronghold helps future generations value it. Community cleaning, workshops, training, and decision-making are possible (Abbas, 2017). In conclusion, citadel repair maintains architectural history, ties to the past, and boosts local economies. UNESCO and community involvement can rescue citadels.



Fig. (3), preservation project of Erbil citadel in Iraq.

2.2. the role of the courtyard in the rehabilitation of historical citadels.

The courtyard repairs citadels. Citadel courtyards were utilized for communal gatherings, defense, and religious and cultural events. The courtyard powers the Citadel. Many citadels merely had courtyards for light and ventilation. The courtyard symbolized and served (Asadpour, 2020). Business, religion, and culture events occurred.

Al-Quseir Castle is one of the essential examples reused throughout the castle's inner courtyard, as it is crucial in telling the story of the pilgrimage journey from the Maghreb through Egypt and from Al-Quseir to the Hijaz lands. The courtyard of the Citadel was used to tell the story of the city through a map depicting pilgrimage routes that covered the courtyard. Displaying groups of pilgrims' boats alongside the castle's cannons and the phosphate train as a new activity introduced the activities of the city's residents, making the courtyard the central element in the reuse operations (Ahmed Yehia Rashed, Mohamed Esmat El-Attar, 2005). The restoration of the castle served as a

starting point for building reuse projects. The heritage city, including Sheikh Tawfiq's house, which was converted into a hostel.



Fig. (4), rehabilitation of Al-Quseir citadel.

2.3. community engagement and the use of the courtyard as a focal point for preservation and enhancement.

Citadel restoration requires community involvement. Involving the community in restoration ensures that future generations cherish the Citadel. Community engagement builds support for citadel preservation and enhancement, which can assist secure money and resources (Bonilla-Santiago, 2019). Use the courtyard as a focal point for preservation and enhancement to engage the community in rehabilitation. The courtyard is the Citadel's heart, where people meet and communicate. The Citadel's historical and cultural significance can be preserved by renovating and preserving the courtyard (Sumbul Muhammed Yunus , Qubad Sabah Haseeb, 2018).

The courtyard can be used to preserve and enhance museums, galleries, and cultural centers. The Citadel's history and culture can be taught in these venues. Outdoor events and performances can bring visitors and money to the town.

3. Case study: Qayet-Bay citadel in Rosetta – Egypt.

The Qayet-Bay Citadel was built in Rosetta during the reign of Sultan Qayet-Bay in 1472 AD in order to protect the coastal areas (Darwish, 2017). He also constructed another castle in Alexandria. The castle's military function declined during the Ottoman era, while the French violated and fortified it following their defeat in Abu Qir in 1799 AD (Darwish, 2017). They renewed it and changed its military components.

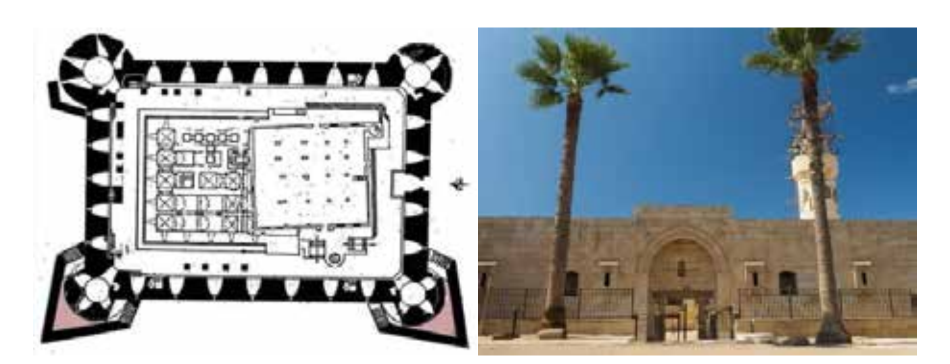


Fig. (5), plans and main entrance of Qayet-Bay citadel.

3.1. Cultural and historical importance of Qayet-Bay citadel.

The Rosetta Stone was found in Qayet-Bay within Rosetta Citadel, which is the primary reason for the location's significant historical and cultural impact. This stone is one of the most important archaeological discoveries that helped in comprehending the history and events of this civilization (Darwish, 2016). The ancient Egyptian civilization was deciphered by decoding the symbols on this stone, and as a result, this stone is regarded as one of the most significant. It is generally agreed that the Rosetta Stone is the most valuable collection in the British Museum.

3.2. Qayet-Bay citadel Preservation project.

The Egyptian Ministry of Culture initiated a mission to documentation and restoration the Citadel, the objective of the restoration project was to preserve the Citadel's historical and cultural relevance, as well as to improve its architectural elements. This included restoring aesthetic components such as sculptures, carvings, and paintings, as well as mending structural aspects such as walls and towers (Darwish, 2016). The restoration project also included the construction of additional cultural and educational facilities, such as a museum and a visitor center, intended to educate the public about the Citadel's history and cultural value.

The restoration project has been halted, and the mosque's restoration in the courtyard has not been completed. However, the lack of citadel rehabilitation and the cessation of restoration work negatively impacted the preservation and restoration operations of the Citadel, resulting in the poor condition of the Citadel's inner courtyard.




Fig. (6), restoration and documentation project of the Citadel.

3.3. Using the citadel courtyard to develop the local community.

The reuse of the Qayet-Bay Citadel courtyard is one of the factors that helps maintain the castle's preservation efforts and contributes to the growth of the local community. The Citadel's courtyard represents the link between the local community and the rest of the world. The courtyard is where the most significant artifact used to understand ancient Egyptian civilization was discovered. The most significant archaeological artifact in the British Museum, the Rosetta stone, must be returned to the site of its discovery. The local community was connected to the Citadel's courtyard via the mosque within this enclosure, which connected the castle with the local community's daily life.

3.4. The universal declaration for civilization rights and rehabilitation citadel's courtyard.

The universal declaration for civilization rights (UDCR) in his first article states that. Any entity that exploits or uses a country's cultural and civilization heritage, whether through pictures, models, imitation copies, names, slogans, or other means, is entitled to claim its material and moral rights. Returning these claims should preserve civilization heritage in their original homeland. (Rashed, 2021). According to this article, the rights to the Rosetta Stone to be returned to its original location are claimed for display, which determines the function of the Citadel's courtyard as a museum in the future, which requires preparing the site to carry out this function.

According to this article, the British Museum has a role in preserving the original site where the stone had been discovered until its return. The courtyard can display a replica of the Rosetta stone and link the discovery site in virtual reality with the British Museum as an additional option to see the original stone in the museum and also an addition to the museum to visiting the original site the discovery.

Linking the British Museum visit to visiting the original site of the discovery through virtual reality will lead to seeing the original site, which works to develop the local

community due to increasing revenues from tourism in the region. The museum can also be claimed for the civilization rights, represented in the development of the local community through its use in manufacturing the memorial gifts that the museum displays of the Rosetta Stone, and the local community of the region is responsible for its manufacture.

3.5. The role of interaction between the community and Citadel's courtyard.

Castles and forts are dead heritage separated from the local community's daily life. Because of the mosque's presence in everyday life of the local community, the courtyard in Qayet-bay citadel is now considered an element of distinction, representing a social value added to the castle's cultural and historical values, making the reuse of the inner courtyard possible. The castle is a factor in society's development and preservation operations' sustainability.

3.6. The Qayet-bay citadel courtyard as a platform for monitoring and measurement.

The research proposed to use of the Qayet-bay citadel courtyard in monitoring and measuring the Burg Rashid village development and climate change. The project will be an opportunity to decipher civilization rights and climate change and achieve the goals of the United Nations for sustainable development. Monitoring and confronting climate change challenges in the Burj Rashid area can be a model to apply in all archaeological and heritage environments threatened by climate change, as well as those communities claiming civilization rights and returning their looted treasures to their original environment.

4. Conclusion.

The courtyards of historical citadels can play an essential role in their rehabilitation and preservation process. The courtyards should be rehabilitated to sustain the conservation projects. Community development is an essential factor affecting the rehabilitation process, and an interaction between the courtyard and the local community should be found. The research finding can be summarized in the following points:

1. Community development: Qayet-Bay citadel's courtyards can promote preservation and restoration, engaging local communities and increasing financial returns from handicrafts and investment projects, fostering a sense of ownership and pride in the Citadel's cultural heritage.
2. Civilization rights: The local community has the right to return antiquity and heritage to its original home to benefit directly from it or to claim community

development from the beneficiary. Courtyard) through the virtual British Museum (stone display) to its original location.

3. Citadel courtyards can preserve and enhance cultural and architectural significance. Civilization rights can help future generations access, value, and preserve these cultural heritage assets through community engagement, architectural preservation, environmental management, and adaptive reuse.

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"A courtyard is a place where history and culture come alive."

- Unknown

04

ASSESS THE MAINTAINANCE PROCESS OF THE COURTYARD HOUSE (AHP) MODEL, CASE STUDY OF AL-KAYED- JORDAN

ANWAAR, M.BANISALMAN, SHEFA,A.BANIAHMAD, FERAS M.ALKHATATBEH

Abstract

Jerash has a unique historical importance at the global level, among the most important features are the traditional houses, such as the house of the Pasha Ali al-Kayed, Which the Jordanian Ministry of Tourism and Antiquities took care of . This research aims to reveal the importance of using Analytical Hierarchy Process(AHP) method in planning the maintenance process, The main methodology is to comparing the maintenance task plan by contractor with the (AHP).The researcher concludes that there is no compatability between the criteria of the AHP model and what is done in our study case.

Keywords

Analytic Hierarchy Process, Building Maintenance Management, Courtyard House, PRIMAVERA, Comparison Method.

Introduction

Ali Pasha Al-Kayed is located in Souf- Jerash, it's a heritage monuments dating back to the era Ottoman Empire and the beginning of the era of the emirate. Noticed that at the maintenance process that contractor's experience used to select the maintenance elements ,otherwise internationally Analytical Hierarchy Process(AHP)used to define priorities of tasks. Research process were: mapping (contract documents, drawings, PRIMAVERA schedule), follow up onsite maintenance process, group the tasks in to (building structure, building fabric, building services), then assesst if the selection of maintenance elements compatible with AHP model.
Our goals are:Review the architecture elements of Alkayd house as an example of courtyard building in Jordan,document maintenance works carried out and entroduce (AHP) model as a criterion for building maintenance management in Jordan.

Literature

AHP Is a versatile methodology that gives people or groups the chance to create concepts and identify issues using their own presumptions. It's decision-making tool used to select the appropriate heritage building elements.(chua, shah ali, & bin alias, 2018), insure that Building maintenance was assisted by a decision-making framework based on AHP technique ,that was adopted and validated for its effectiveness. AHP has been applied in many areas of decision making (Caputo, Pelagagge, & Salini, 2013) ,For historic buildings AHP can be utilized as a decision-support tool . (Zuraidi, Rahman, & Akasah, 2018) divided the selection of criteria for heritage building to three criteria which are building structure, building fabric, and building service as shown by table (1). Implementation of (AHP) help decision makers in maintaining universities. (Azlan , CHUA , & Bin Alias, 2015),(Justin, 2021)found this method as multi-criteria decision-making approach for selecting a maintenance plan, which is superior to the traditional experience-based method.

Table 1: survey aspects of traditional courtyard house

Criteria	Priority Weightage	Attribute	Priority Weightage
Building Structure	0.481	Foundation	0.458
		Column	0.221
		Beam	0.207
		Truss	0.076
		Stair	0.039
Building Fabric	0.405	Floor	0.317
		Interior Wall	0.188
		External Wall	0.184
		Roof	0.121
		Ceiling	0.087
		Door	0.050
		Window	0.031
		Arch	0.021
Building Service	0.114	Electric	0.525
		Air Condition	0.279
		Fire Protection	0.139
		Sanitary	0.057

Source: (Padash, Mahmoudi , & Abadi , 2018)

Case study- (Ali Pasha Al-Kayed house an example of courtyard building)

(Padash, Mahmoudi , & Abadi , 2018)found that the most important reasons for yard house are categorized in two axes: human tends to collective life and a deep relation of the human with nature. The interior courtyard performs an important function as a modifier for climate and privacy specially in arid regions (Akbar, 1980), (Guedouh & Zemmouri, 2017).

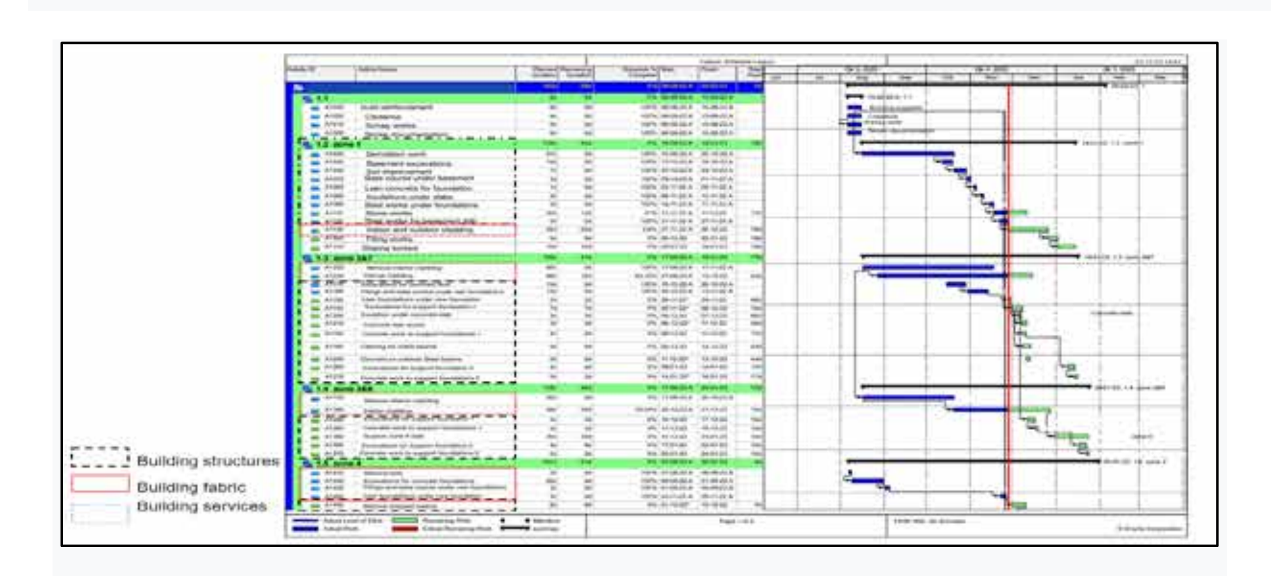
Alkayed house consists of three floors: the main basement, ground ,and first floor with 1069 square meters total area . Basement floor;This floor consists of three main rooms at the level of the lower terrace, and its area is estimated at about 260 square meters. It was used as a kitchen and a stable for horses. Iron bridges were used in the construction of this floor that carried the roof, and the building pattern was unified on the entire floor, which is likely to be built in one period of time. The ground floor ;This floor consists of seven main rooms, surrounding the central courtyard, and its area is about 522 square meters. It's differ in construction patterns. One of the structural patterns that were used is the Cross Barrel Vaults system .A diwan was also built on this level. The first floor ;The first floor is characterized by the presence of nine main rooms and an estimated area of about 287squar meter. King abdallah l was sitting in it and he was reading the Qur'an, this is due to the beauty of the view from the balcony of the house (Minestry of Tourism and Antiquities, 2020).The house is designed in a way that allows the interaction of the internal spaces with the external environment. The presence of the inner courtyard surrounded by the spaces of the ground floor, and the direct connection of this courtyard with the main entrances of the house allows the creation of a suitable environment that reflects the nature of living in that period.The patio acts as an external distributor between the different spaces.

Analysis and Discussion

Maintenance task started with conducting Economic Feasibility Studies by corporation between ministry of tourism and antiquities as a public sector in Jordan with Faris Bagaeen office as private sector, they insure that the house needs structural reinforcement to preserve its heritage value, by mapping the conditions and specifications in the contract document researchers notes that:
Firstly; according to s.1.6 of contract document, Supplementary Particular Conditions:

> *The contractor to whom the bid is awarded shall submit to the engineer, within a period not exceeding (15) days, a schedule minutes through the Primavera program showing the stages of implementation of the project's work with the Resources .*

Secondly; According to s.25.16 of contract document, Supplementary Particular Conditions:«*Work priorities have been determined according to the engineer's directives temporal or spiritual*» (Minestry of Tourism and Antiquities, 2020).
This indicate the issue validity of the main problem discussed in this study.
Using primavera program the contractor organize the work ,as shown in Graph (1) the completion period is 180 calendar days. By mapping this documents,researchers group the task to: Building structures, Building fabric, Building services,then by ccalculating the actual duration of work, we found that; Building structure 65% of total workdays, building fabric equal to 76%, building services 70 day equal to 39%, by comparing this results with AHP model we found that there is no agreement between the criteria of the AHP model and what is done in our study case, see table 2.



Graph1: flow of maintenance work. Source: by Diran &Masri Consultant, Architect, Engineers. Edited by: Researchers.

Table2: Comparison between Alkayd house maintenance priorities and AHP model**.**

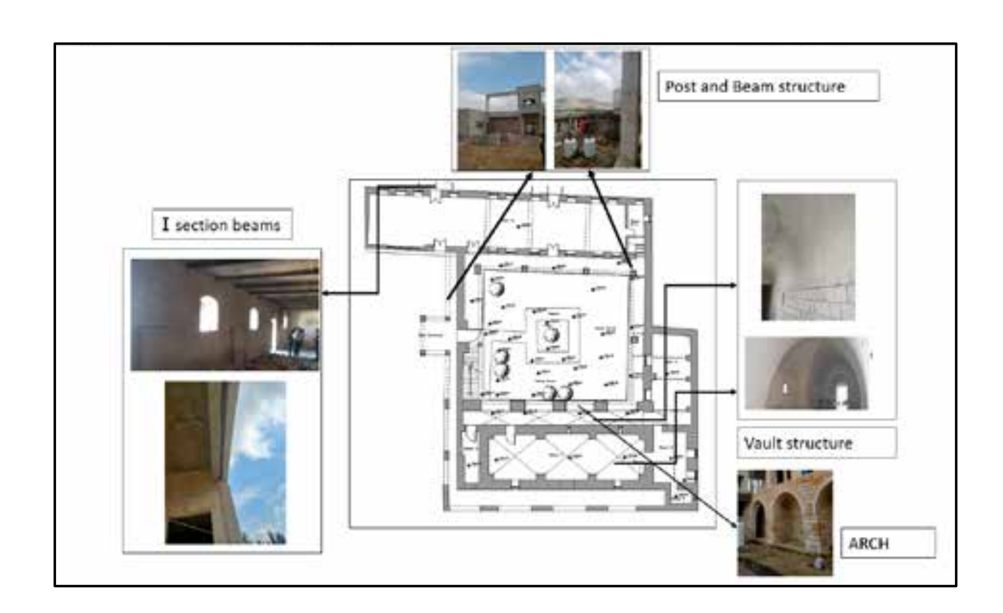
	Conservation of Alkayd house	**AHP model**
Building structure	65%	48%
Building fabric	76%	40%
Building services	39%	11%

Source: researcher

According to AHP, the importance of building structure is over building fabric, building fabric over building service, in other hand at Alkayd house we can see building fabric are more important for maintenance process, this result is expected because of the fact that most of building fabric are in bad situation and separated from the structure, graph 2. Also Consolidation techniques use frequently to maintain the structure over time, among various structures used such as vault, post and beam, I beam sections, arches that keep the structure in a better condition, see Graph (3). Maintence tasks were very important but there weren't separation between (building strucure,fabric and services) in contractor plan.



Graph 2: Building fabric separated from structure. Source: researchers.note 1: structure,2 :building fabric.



Graph 3: Different structural system at Alkayd house. Source: researchers

Conclusions

This research introduces the Analytical Hierarchy Process (AHP), as a multi-criteria decision-making approach should be taken into account at work, keep in mind that the selection of building element process is a component of a larger investigation of more intricate damage and defect in historic buildings.

Contractor experience, perceptions, expectations of owners, and the conditions appraise during the work is a local conditions defer from region to another, this must have linked with AHP and used as a support tool in the decision-making process related to the problem of choosing a heritage building maintenance elements. That will contribute to create balance between the various restoration works, taking into account the reduction of time and effort.

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05

DESIGNING THE COURTYARD HOUSE

ANGELO VECCHIO

Abstract

The courtyard house is a characteristic of civilisations across the Mediterranean. Furthermore, in this region it is often adopted by architects as a model of development and reinterpreted with new meanings, forms and definitions. While on the exterior a closed form indicates the act of defending contained space, on the inside it generates welcoming and generous space, be it the shaded court of an Islamic home or the patio of an Italian dwelling. While there is little doubt that the need for personal privacy is one of the keys to interpreting this type of dwelling, the act of erecting a wall against the chaos. The projects that follow all share the desire to create scenic constructs, particular architectural devices such as courtyards, porticoes, vertical cuts and large windows, all designed for observing the truly inexpressible aspect of the natural landscape, experienced from inside architectural space. Each was designed together with its garden, with landscaped spaces that represent a true oasis for mind and body. They separate and conserve the intimacy of the home, and transmit serenity and peace. It is enough to enter inside these homes to understand what they all share: each was studied with love and a dash of poetry.

Keywords

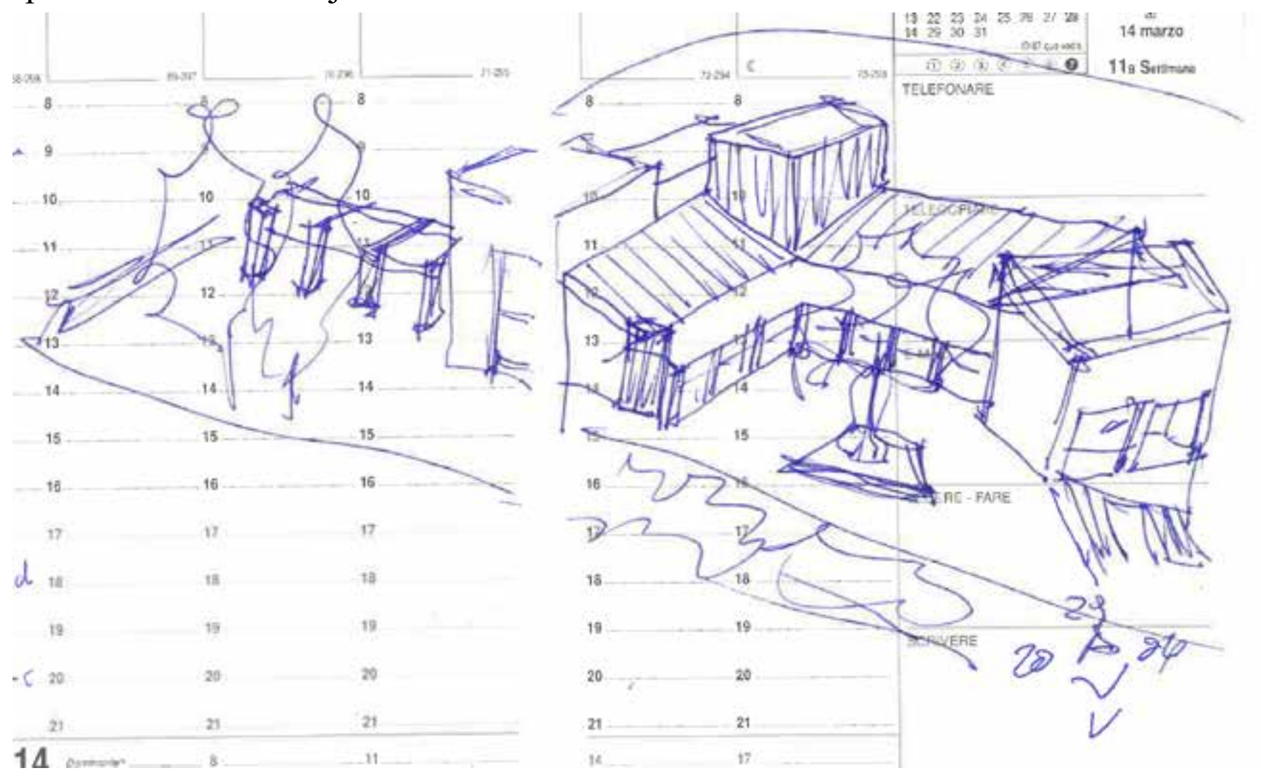
Porticoes, vertical cuts, large windows, landscape, oasis..

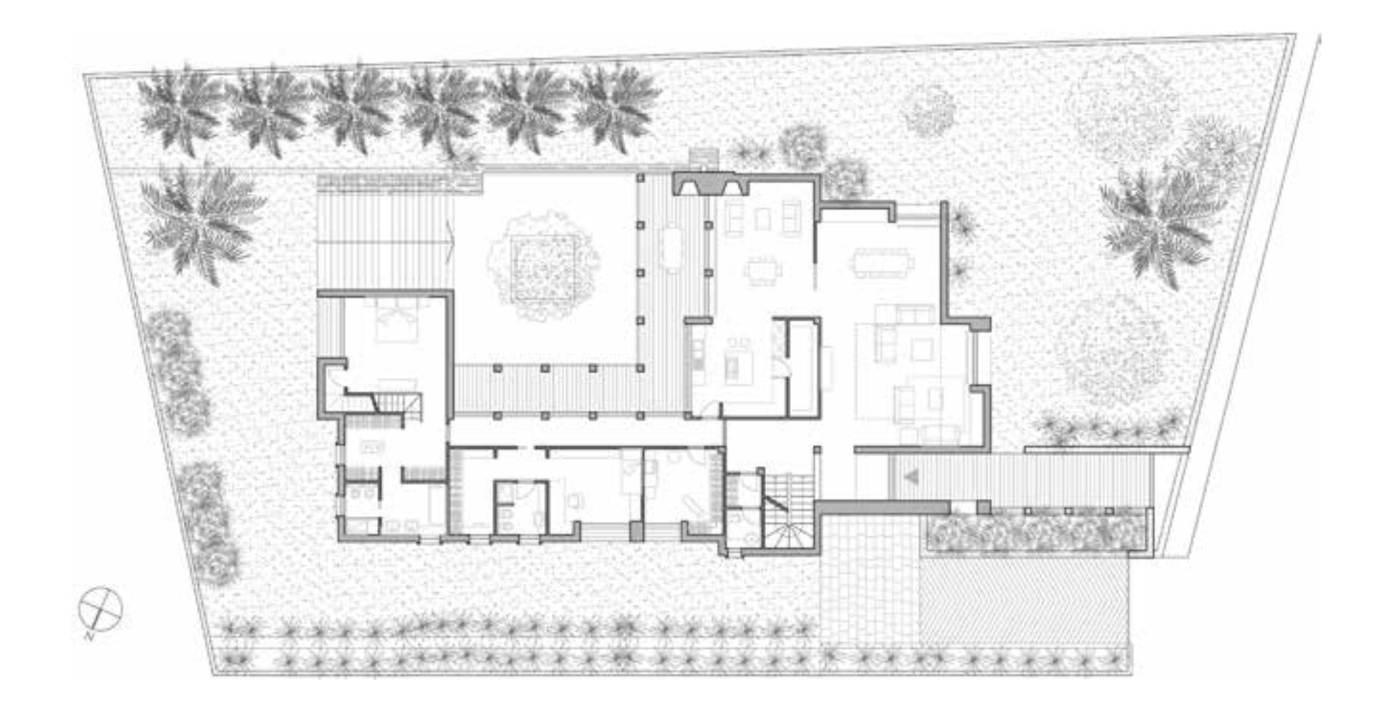
Introduction

The courtyard house is without a doubt one of the oldest domestic typologies. This tradition of building is a characteristic of civilisations across the Mediterranean. Furthermore, in this region it is often adopted by architects as a model of development and reinterpreted with new meanings, forms and definitions. Volumes wrap a central courtyard to create architecture that stems from the notion of the enclosure. While on the exterior a closed form indicates the act of defending contained space, on the inside it generates welcoming and generous space, be it the shaded court of an Islamic home or the patio of an Italian dwelling. While there is little doubt that the need for personal privacy is one of the keys to interpreting this type of dwelling, the act of erecting a wall against the chaos of the contemporary world remains the generating principle of its architecture. Modern architecture offers many versions, beginning with the experiments of German Rationalism.

Throughout my professional career I have designed more than a few courtyard houses. When adopting this model, in some cases I accepted the interesting challenge of completely inverting the idea of enclosure.
The projects that follow all share the desire to create scenic constructs, particular architectural devices such as courtyards, porticoes, vertical cuts and large windows, all designed for observing the truly inexpressible aspect of the natural landscape, experienced from inside architectural space. Each was designed together with its garden, with landscaped spaces that represent a true oasis for mind and body. They separate and conserve the intimacy of the home, and transmit serenity and peace. It is enough to enter inside these homes to understand what they all share: each was studied with love and a dash of poetry.
LRG House - LRG House is a luxury single-family home. Its distinctive element is the patio dominated by a large olive tree, the fulcrum of the entire home which can be admired through the house's large windows, from both the living spaces and bedrooms. The house is laid out on a single level. The only exception is the library-study looking onto the living room and leisure space, accessed from the master suite.
A path from the street leads toward the front door via the garden, and a tall window reveals the double height interior with its vast living room. Designed to host different functions, the volumes of this house are interwoven around the patio, their overlooking mediated by the portico in front of the living-dining room and kitchen and leading to the corridor toward the bedrooms. The perimeter of the patio is not completed by solid walls or the permeability of the other elements of the portico, but by the suggestion of running water. A stream issues from a spigot on the wall and drops into a pool connected to a small channel, suggestively illuminated at night, establishing a virtual boundary that accompanies the level change running between a lava-stone stair and retaining wall. Here another pool marks the end of the water's journey. The entire design is played out between possible connections and the secret spaces of the patio: water is as an element of richness and prestige, designed to exalt the shifting and perpetual values of tradition, recalling the water channels the gardens designed by the Arabs who left their indelible traces on the island of Sicily.
External finishes in white stone and lava stone speak to an expressive diversification that is recomposed in this clearly contemporary and complex home. Ventilated façades conceal an in-depth study of details and connections behind an apparent simplicity. New technologies play a leading role, without overwhelming the design. A contrasting pallet of materials was selected to furnish and finish the home: stainless steel and wood for the entry gates, and marble and wood paving; steel and wood for the balustrades and parapets of the stairs. The entire design is permeated by a rigour of forms and materials. The design of the garden and landscaped spaces reveals a further component

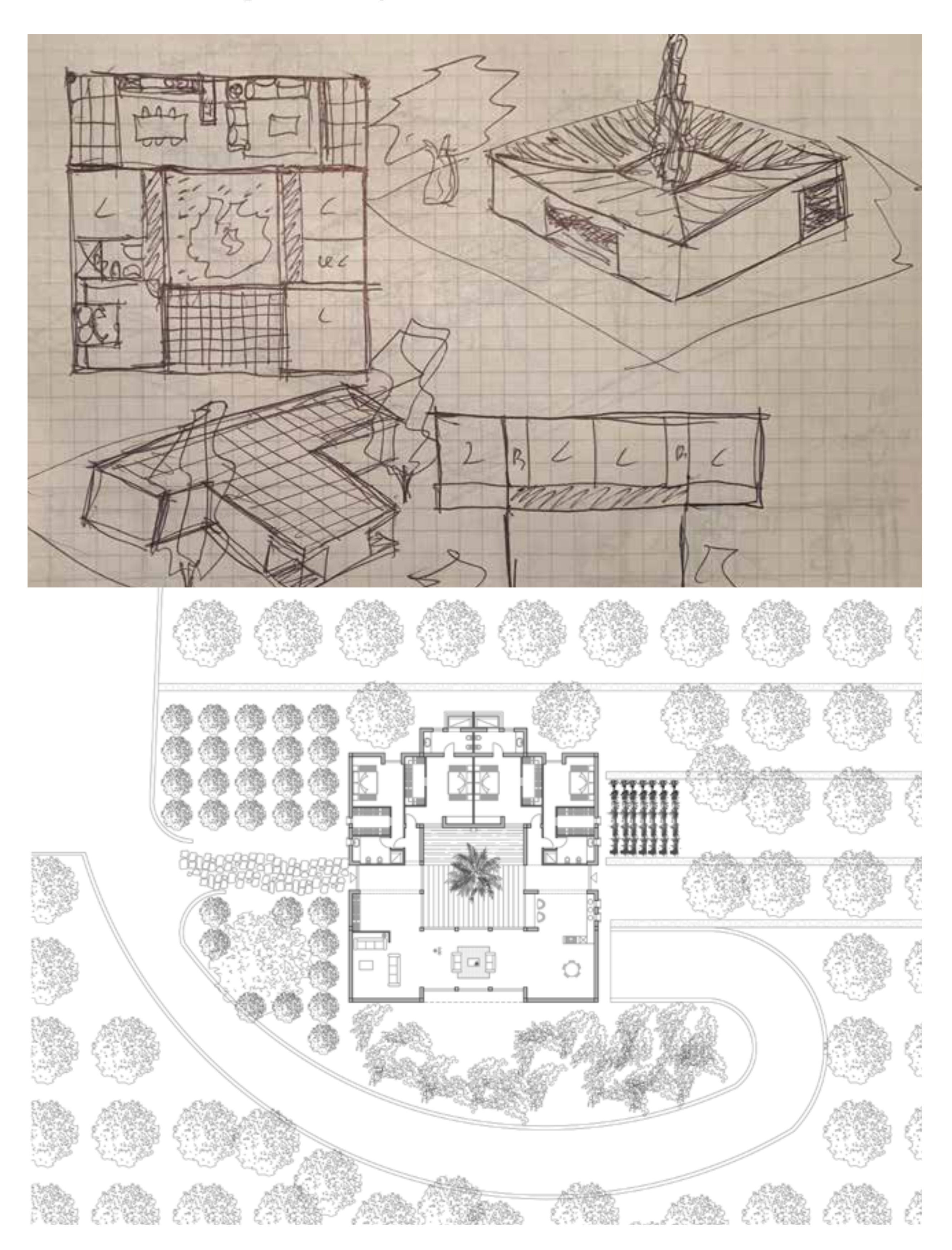
of the identity of the home, where the multiple corelation between interior and exterior spaces becomes an objective for architecture.





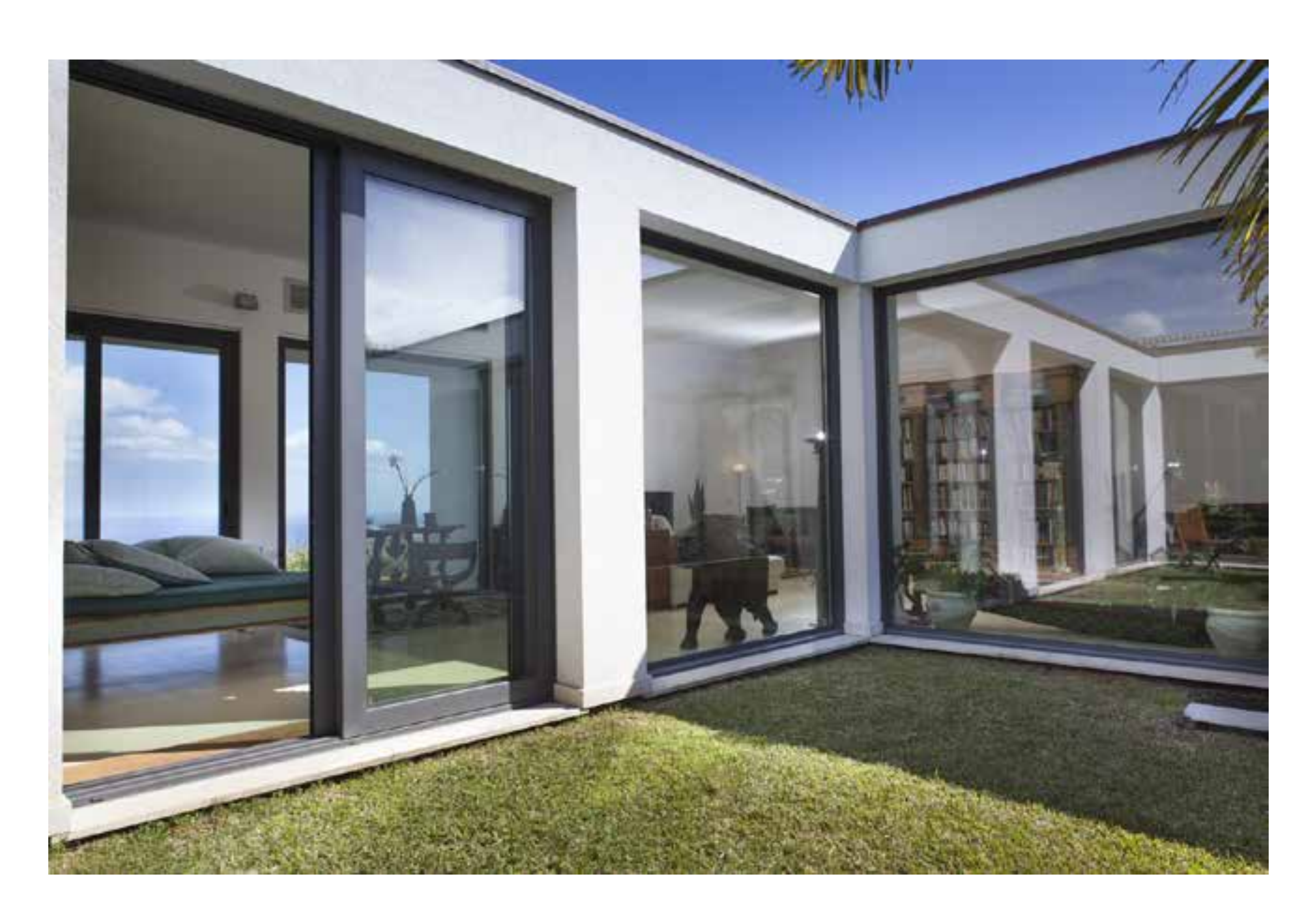
House in Ricceri - Immersed in a lush garden of citrus trees in the splendid coastal landscape of the Ionian Sea, this house is characterised by a play of transparencies between inside and outside. This one storey house resembles an ancient Roman domus, which generally featured a squarish opening at the centre of its roof, known as a compluvium, through which rainwater fell after moving along the inward facing pitches of the roof. The interiors of the home are once again arranged around an internal courtyard, a shaded space with a small garden dominated by an Archontophoenix alexandrae. The palm tree standing beside the reflecting pool, which is also a swimming pool, brings a hint of the exotic to a space that can be used for convivial gatherings or for relaxing and basking in the tranquillity of isolation.
The pitches of their roof slope inward and their eaves are set flush with the faces of the external walls. Finished in sheets of copper, the quadrangular volume of the house takes on a monolithic appearance that is further exalted by the use of white plaster for both the external and internal walls. This choice further evidences the relationship with the exterior and accentuates the natural colours of the surroundings, which seem to push their way inside the home. Each room in the house offers a glimpse of at least one other interior space, across the open central space, multiplying perspectives and views. Large windows open the interiors toward the courtyard and the panorama of the Ionian Coast, framing spectacular glimpses of the sea. The kitchen, living room and dining room are projected out into the landscape and toward the sea in the distance through the large east-facing window.
The house is surrounded by a garden filled with Jacaranda mimosifolia. In front of the entrance to the house, the garden opens up to welcome plantings of Kumquats, the

Chinese mandarin plant (Fortunella japonica). Like a carpet, it alternates the perfumes of its flowers with the colours of its fruits. Mimosa plants and oleanders bring their colours to the other spaces of the garden.









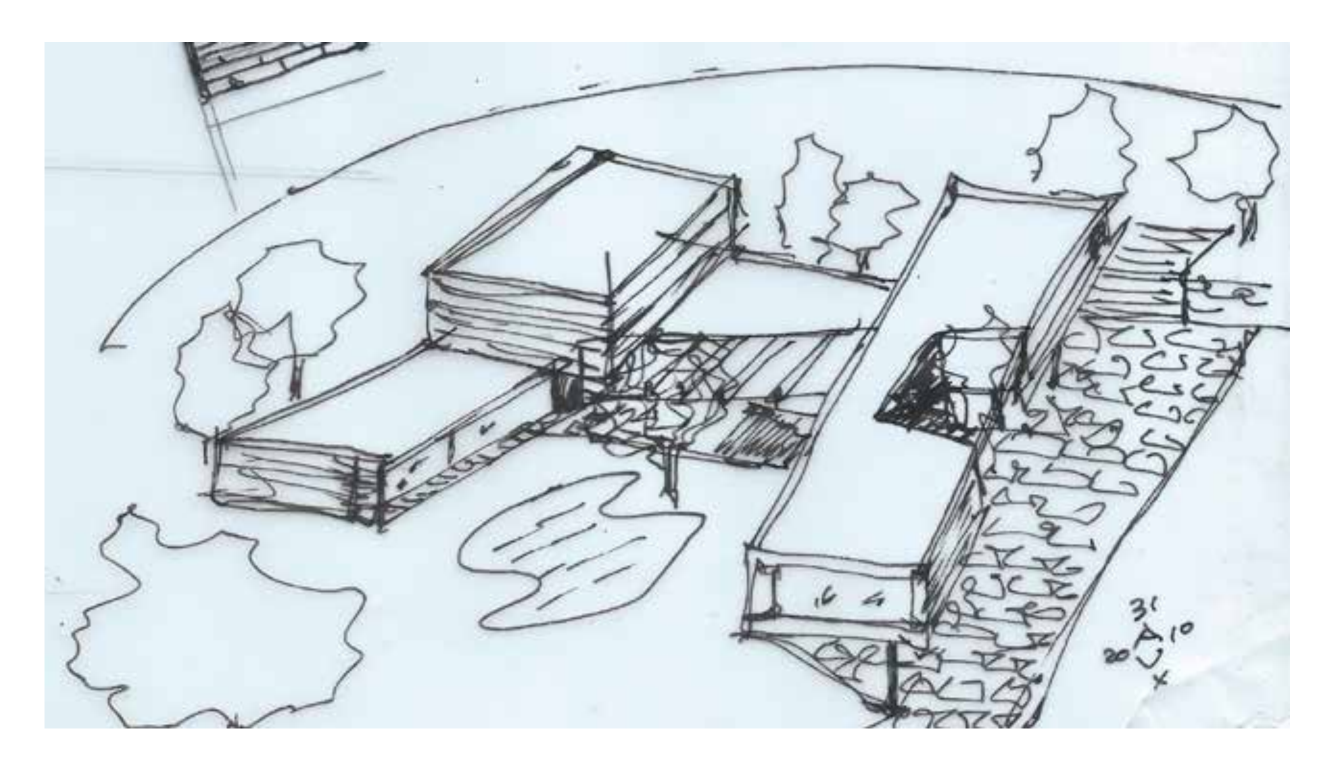
VS House - This home is composed of three interlocking volumes that from a C-shaped plan. The virtual presence of a fourth volume is evoked by the swimming pool and the adjacent reflecting pool that close the courtyard. There is an evident reference to the “Sicilian baglio”, characterised by a large central void framed by domestic and productive activities. This large single-family home wrapping a lawn alters the model of a courtyard home and gives the space a multiplicity of perspectival views, emphasised and exalted by large windows.

The house assumes distinctive characteristics, not only for its highly articulated volumes, but also for its exaltation of the material qualities of external finishes, in turn linked with the interiors in a rhythm of vibrant tonal variations.

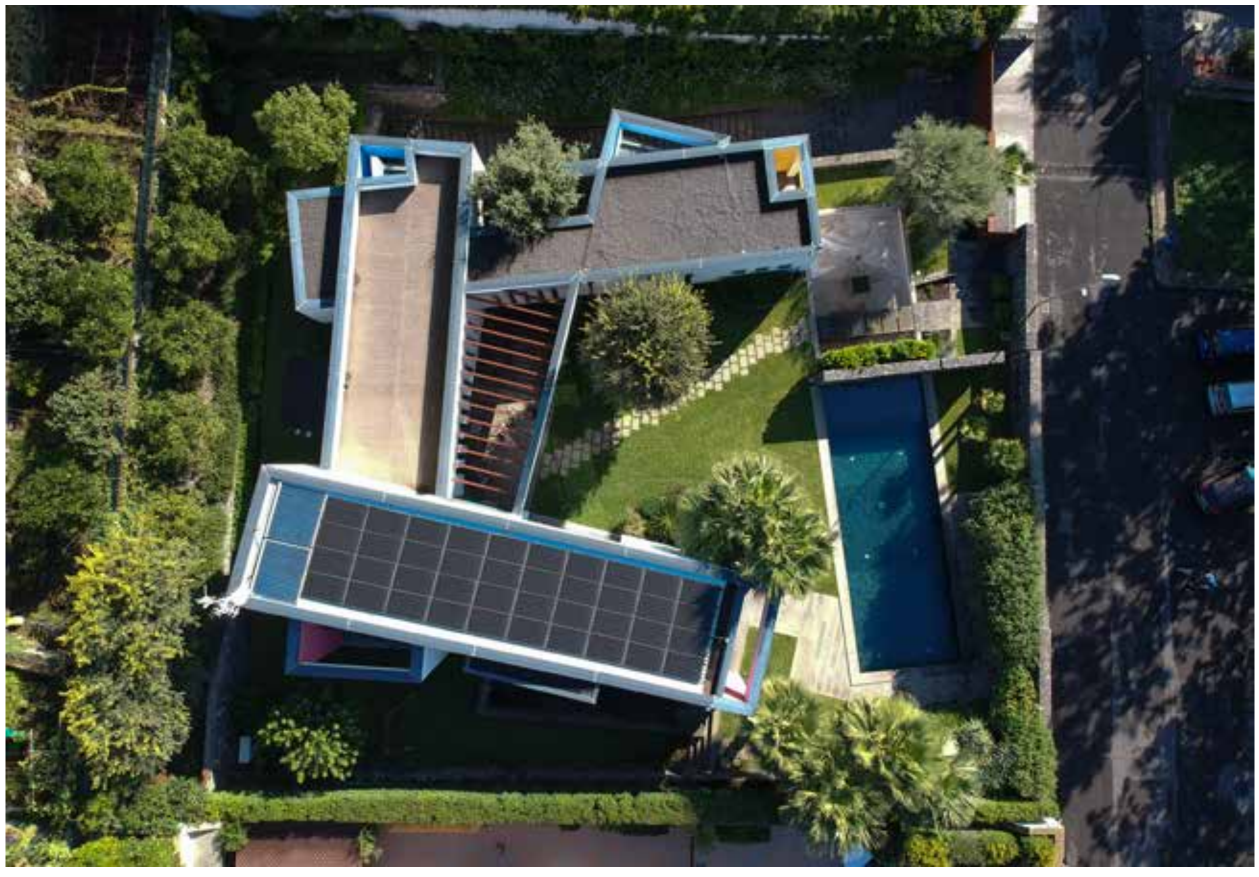
The path toward the entrance begins at the corten steel gate. Passing over an ornamental pond filed with aquatic plants, it leads into the courtyard. The path from the driveway passes between stone walls covered with flowering plants leads to the garage and the space beneath the bedrooms, used for guest parking.

The house is three storeys in height. The basement contains a garage, a large cellar and service spaces. The ground floor features a large private living space consisting of a kitchen, pantry, dining and living room; another area with a large living-dining room; a master suite with private ensuite and dressing room, two single bedrooms with ensuite baths. The two areas of bedrooms are connected by a bridge that can also be used as a study space by the homeowner’s children. A large opening in the slab permits the growth of a cork oak tree that filters external light and branches out over the roof.

The entrance to the house leads into a vestibule that offers direct access to the kitchen, the large living room and the internal stair. The first floor is almost entirely a terrace, with the exception of a space reserved for guests and a study overlooking the living room. Solar panels integrated within the roof pitches serve the house's needs. All spaces of the house feature large glazed doors that provide access to the garden at the same level. The visual continuity between interior and exterior helps brings the warmth of the natural elements inside the home. The courtyard features a large Celtis australis. Palm trees are planted in a variable pattern around the pool framed by stone retaining walls. The house is wrapped in a green mantle.













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Courtyard in a mediterranean house, by Night Cafe

06

REIMAGINING THE COURTYARD: EXPLORING THE EVOLUTION OF HOME DESIGN

ASMAA RAMADAN, AYAH SALEM ELDEEB, MOHAMED ESMAT ELATTAR

Abstract
Examining the role of courtyard design in the future of residential architecture and exploring how advances in technology are allowing architects and designers to create more innovative and dynamic courtyards, and how these courtyards have broader implications for the future of home design is one of the topics that still needs to be addressed.

The paper discusses the benefits of courtyard design, including indoor-outdoor integration, sustainability, privacy, flexibility, and wellness. It also highlights the challenges of courtyard design and how architects and designers can overcome these challenges through collaboration and innovation.

Through an examination of case studies and expert analysis, the paper shows how courtyards have evolved over time and how they will continue to shape the future of home design. It also emphasizes the importance of further research and discussion on this topic, inviting architects and designers to think critically about the potential impact of courtyard design on residential architecture and to collaborate with other professionals to create truly innovative and dynamic living spaces.

Overall, this is to provide valuable insights into the potential of courtyard design and its broader implications for the future of residential architecture.

Keywords
Sustainable Courtyard; Home Design; Technology; Residential Architecture; Indoor-outdoor Integration.

Introduction

1. Background about home design:

Home design is a vital aspect of residential architecture, encompassing the creation of functional, aesthetically pleasing living spaces that can enhance the quality of life (Dunn, 2000). It involves the arrangement and organization of interior and exterior spaces, as well as the selection of materials, colors, and textures that define the character and personality of a home.

The significance of home design lies in its impact on people's daily lives. Research suggests that the design of living spaces can affect user's mood, behavior, and overall well-being (Gür & Kaprol, 2022; Reddy et al., 2012; Tawil et al., 2021). A well-designed home can provide a source of comfort and inspiration, offering a safe and welcoming environment in which to relax, work, and socialize.

Home design also has broader implications for the environment and society. Sustainable home design practices can help to reduce energy consumption, minimize waste, and promote ecological stewardship (Sev, 2009). Innovative home designs can address the changing needs and lifestyles of modern society, accommodating diverse living arrangements and promoting social equity.

In summary, home design plays a critical role in residential architecture, with implications that extend far beyond the aesthetic appeal of individual homes. By creating functional and sustainable living spaces that enhance the quality of life, home design can contribute to a healthier, more equitable, and more sustainable society.

A. Importance of the courtyard in home design:

The courtyard is an important element of home design, representing a space that is both functional and aesthetically pleasing. The courtyard has a long and rich history, with examples of courtyards dating back to ancient civilizations such as the Greeks and Romans as shown in Figure 1 (Papaioannou, 2007; Rawson, 2010). Throughout history, the courtyard has played a significant role in shaping the design of homes and public spaces, with courtyards often serving as central gathering places for social, cultural, and religious activities (Abass et al., 2016; Cortés & de Soto, 2022).



Figure 1: Roman Courtyard

In contemporary home design, the courtyard continues to play an important role. The courtyard provides a private outdoor space that is shielded from the noise and activity of the surrounding environment, offering a peaceful retreat for relaxation and reflection (AL-Mohannadi et al., 2022; Meliouh et al., 2023). Moreover, courtyards can provide natural light and ventilation to the surrounding interior spaces, reducing the need for artificial lighting and ventilation systems and promoting energy efficiency (Abdulkareem, 2016; Elantary & Eldeeb, 2023).

The design of the courtyard can also influence the character and personality of a home. The shape, size, and orientation of the courtyard can contribute to the overall aesthetic of the home, with the courtyard serving as a focal point for the design of the surrounding spaces (Ghaffarianhoseini et al., 2015; Memarian & Brown, 2003). Furthermore, the materials and textures used in the courtyard can create a sense of harmony and cohesion between the interior and exterior spaces, contributing to a unified and cohesive design (Soflaei et al., 2016; Zamani et al., 2018).

In conclusion, the courtyard is an important element of home design, with historical and contemporary significance. The courtyard can provide a private and peaceful outdoor space, natural light, and ventilation, and contribute to the overall aesthetic and personality of the home. The courtyard represents a timeless design feature that continues to be relevant and valuable in modern home design.

B. Purpose of the paper

The purpose of this research paper is to explore the evolution of home design through the lens of the courtyard. The paper aims to investigate the historical significance of the courtyard in home design, examine the contemporary use of courtyards in residential architecture, and explore the potential of the courtyard as a sustainable and functional design element for the future.

The paper will analyze examples of courtyard homes from different historical periods and geographic locations, examining their design features, cultural and social contexts, and the role of the courtyard in shaping the surrounding spaces. Additionally, the paper will investigate the contemporary use of courtyards in residential architecture, including examples of innovative courtyard designs and their implications for sustainable and healthy living.

Furthermore, the paper will explore the potential of the courtyard as a design element for the future, considering its role in addressing environmental, social, and cultural challenges. The paper will examine how the courtyard can promote sustainable living using natural light and ventilation, and how it can support social equity and well-being by providing private and communal outdoor spaces.

Overall, the research paper aims to provide a comprehensive understanding of the courtyard as an important element of home design, its historical and contemporary significance, and its potential as a sustainable and functional design element for the future.

The history of courtyard design

C. Early examples of courtyard design in ancient civilizations

Courtyard design is an ancient architectural concept that has been practiced by various civilizations throughout history. The design of a courtyard involves creating an open space surrounded by buildings or walls, often used for outdoor living, socializing, and relaxation. The origins of courtyard design can be traced back to several ancient civilizations, including the Mesopotamians, Egyptians, Greeks, and Romans.

The Mesopotamians, who inhabited the area between the Tigris and Euphrates rivers (in present-day Iraq), were one of the first civilizations to develop courtyard design (Abass et al., 2016; Abdulkareem, 2016). Their courtyards were often small and enclosed, with a central water feature that served as a focal point as shown in Figure 2. These courtyards were used for both practical purposes, such as irrigation, and social gatherings.

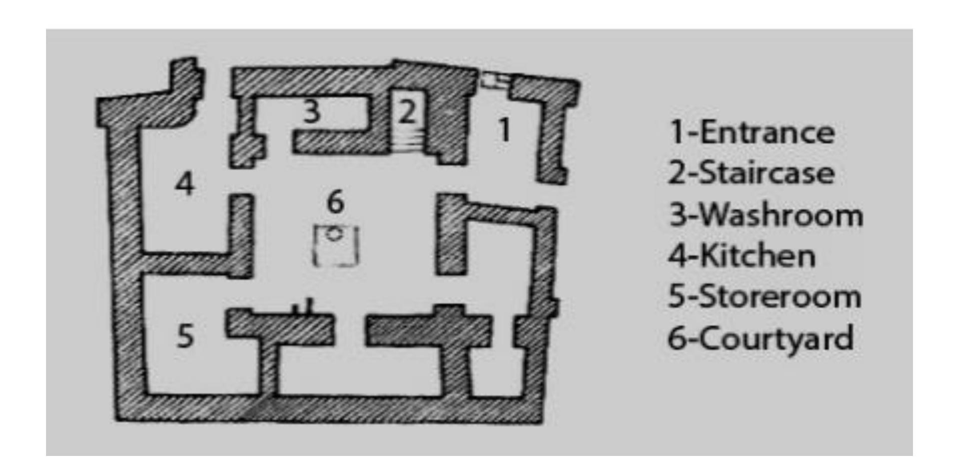


Figure 2: House plan at Ur, Mesopotamia (Abass et al., 2016)

Similarly, the ancient Egyptians were also known for their courtyard design, which played an essential role in their architecture (Gardón-Ramos, 2021; Kemp, 1977). Egyptian courtyards were typically large, open spaces that served as a center for religious and social activities. They were often surrounded by colonnades or porticoes and contained pools or fountains to provide a cooling effect (Dwidar & Abowardah, 2017).

Greek courtyards, or peristyles, were typically open-air spaces enclosed by arcades or porticoes (Anna-Maria, 2009). They were used for socializing, dining, and exercise, and often featured statues, fountains, or other decorative elements. The most famous example of a Greek courtyard is the peristyle of the Parthenon in Athens shown in Figure 3, which was used for religious ceremonies and other public events (Chatzidimitriou & Yannas, 2004; Ghaffarianhoseini et al., 2015).

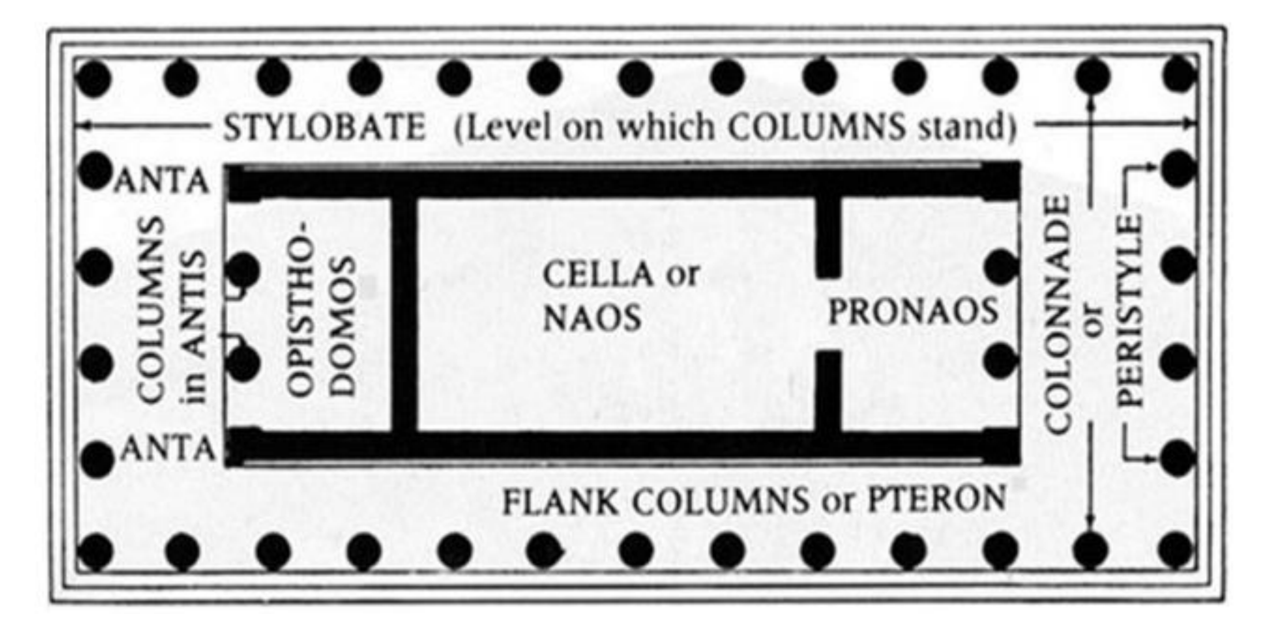


Figure 3: Parthenon ground floor plan

Roman courtyards, or atria, were typically enclosed spaces that served as the entrance hall of a house (Muhaisen & Gadi, 2006). They often featured a central pool or fountain and were surrounded by

columns or pilasters. In larger houses, the atrium could be surrounded by other rooms and even include an open-air garden(Abass et al., 2016; Muhaisen, 2006).

In conclusion, courtyard design has been an essential element of architecture for thousands of years and has evolved to reflect the unique cultures and needs of different civilizations. Today, courtyard design remains popular in many parts of the world, and continues to be a popular feature of homes, public buildings, and other structures (Zhang, 2020).

D. Evolution of courtyard design in different cultures

Courtyard design has evolved significantly over time, with different cultures and regions around the world incorporating unique features and styles into their designs.

In Islamic architecture, courtyards, known as "sahn," were an important aspect of design, particularly in mosques. These courtyards typically featured fountains and pools in the center, surrounded by arcades or galleries (Nafi, 2023). The sahn served both functional and symbolic purposes, as it provided a space for ablution before prayer as shown in Figure 4, and represented the purity and simplicity of Islamic worship (Esmaeili, 2014).

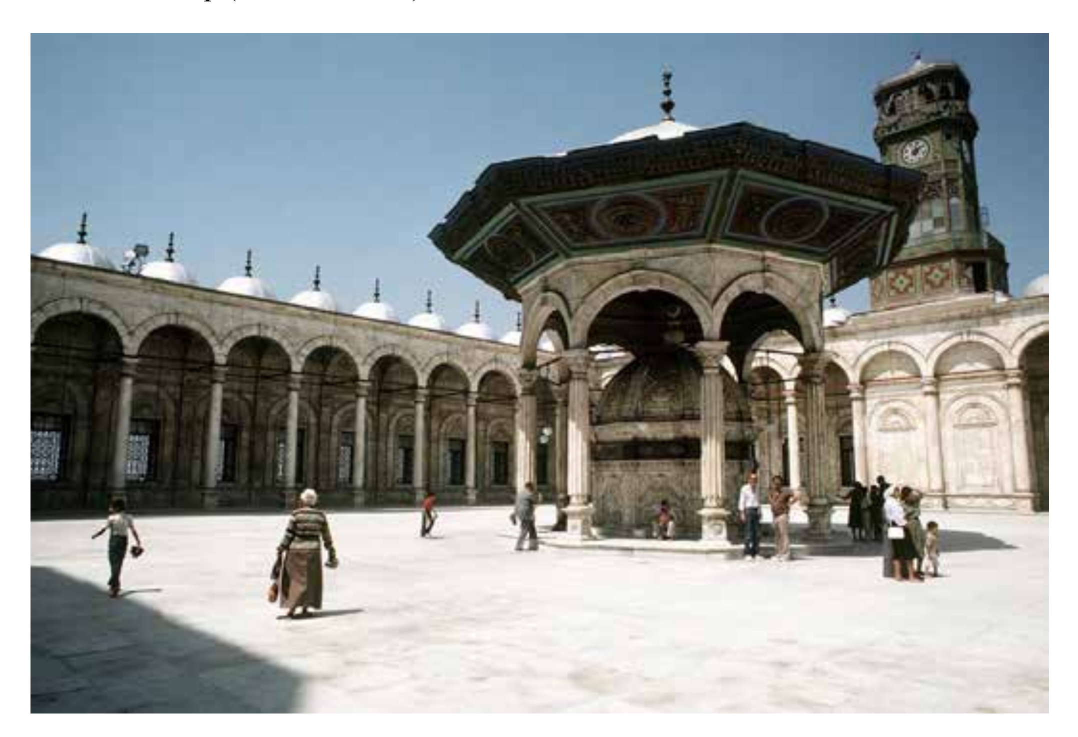


Figure 4: Ablution fountain in center of courtyard of Muhammad Ali Mosque Cairo Egypt

In East Asian architecture, courtyards have been a fundamental feature for centuries. In traditional Chinese architecture, courtyards were often enclosed by four buildings, creating a rectangular shape with an open center (Shah et al., 2022). This design was used for both public and private buildings and was known for its functionality and balance. In Japan, courtyards were also an essential part of traditional architecture, known as "tsuboniwa." These small courtyards were often designed to be viewed from indoors, with careful attention paid to the arrangement of rocks, plants, and water (Haijima, 2017; Manuela).

In Europe, courtyard design has also played a significant role in architecture. During the Renaissance, Italian architects developed the concept of the "cortile," a grand courtyard surrounded by buildings, often used for public ceremonies and events as shown in Figure 5 (Edwards et al., 2006; Frazer, 1973). In Spain, the "patio" was a common feature of houses and palaces, often featuring a central fountain or pool and surrounded by arcades or galleries (Abass et al., 2016).



Figure 5: The Belvedere Court of the Vatican Palace.

Courtyard design has continued to evolve in modern times, with architects incorporating new materials, technologies, and design concepts into their work. Today, courtyard design remains popular in many parts of the world, and continues to be a popular feature of homes, public buildings, and other structures.

E. Influence of courtyard design on modern architecture

Courtyard design has had a significant influence on modern architecture, with many contemporary designers incorporating this design element into their work. One-way modern designers have adapted and reimagined courtyard design is by incorporating green space and sustainable features.

For example, the Bullitt Center in Seattle, Washington, shown in Figure 6, features a central courtyard that serves as a focal point for the building's green space and natural light (Peña et al., 2017). The courtyard is also used as a stormwater management system, collecting and filtering rainwater that is then reused for irrigation and other non-potable uses.



Figure 6: The Bullitt Center, Seattle, Washington

Another way modern designers have adapted courtyard design is by incorporating technology and innovation. The Apple Campus 2 by Norman Foster in Cupertino, California, features a central courtyard surrounded by a circular building, with a unique roof design that incorporates solar panels and provides natural ventilation (Malfona, 2018). The courtyard also serves as a gathering space for employees, with seating and dining areas that overlook the surrounding green space, refer to Figure 7.



Figure 7: The Apple Campus 2 in Cupertino, California

In addition, many modern designers have adapted courtyard design to incorporate cultural and historical elements. The Smithsonian National Museum of African American History and Culture in Washington D.C. features a central courtyard surrounded by a bronze lattice screen inspired by the intricate ironwork found in African American communities (Kendrick, 2017; Turner, 2015). The courtyard also includes a water feature inspired by the "Middle Passage," the forced voyage of enslaved Africans across the Atlantic.

Overall, modern designers have adapted and reimagined courtyard design to meet contemporary needs and incorporate new technologies and sustainable features, while also paying homage to cultural and historical influences.

The modern courtyard

F. Characteristics of modern courtyard design

Modern courtyard design has evolved significantly from its traditional roots, incorporating new materials, technologies, and design concepts. One of the unique features of modern courtyard design is the use of sustainable and environmentally friendly materials, such as recycled or renewable resources, as well as incorporating green space into the design (Baran et al., 2011; Ragheb et al., 2016; Shah et al., 2022).

Another key characteristic of modern courtyard design is the integration of technology and innovation, with designers incorporating features like solar panels, automated shading systems, and smart irrigation systems into their designs. These elements not only enhance the sustainability and energy efficiency of the space, but also create a more comfortable and functional environment for users.

Modern courtyard design also often incorporates a variety of seating and gathering spaces, with designers focusing on creating a comfortable and inviting atmosphere for residents or visitors. This may include features like outdoor kitchens, fire pits, and water features, as well as flexible seating options that can be easily rearranged for different uses.

In contrast to traditional courtyard design, modern designs often incorporate a greater degree of privacy and security, with features like walls, fences, and gates used to create a sense of enclosure and seclusion. This is particularly common in urban settings, where residents or users may want to create a private oasis within a bustling city.

Overall, modern courtyard design has evolved to incorporate a greater emphasis on sustainability, technology, and comfort, while also providing a sense of privacy and security for residents or users. These unique features distinguish modern courtyard design from traditional courtyard design and reflect changing societal values and design priorities.

G. Examples of modern courtyard design in residential architecture

Modern courtyard design is a popular feature in contemporary residential architecture, with designers incorporating this element in a variety of ways to create functional and stylish living spaces.

One example of modern courtyard design in residential architecture is the Desert Courtyard House by Wendell Burnette Architects. The house is in Scottsdale, Arizona and features a central courtyard that serves as the heart of the home, providing a private and sheltered outdoor space for the residents (Ibrahim, 2021; NASTRI, 2015).

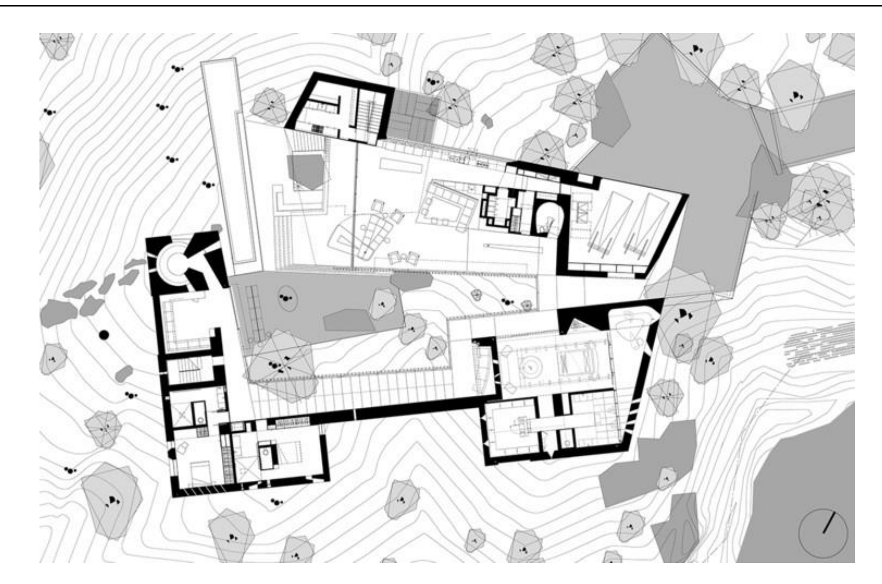


Figure 8: Desert Courtyard House Wendell Burnette Architects

Another example is the Courtyard House by FIGR Architecture Studio. Located in Melbourne, Australia, the house features a central courtyard that is visible from every room in the house, creating a strong visual connection between indoor and outdoor spaces. The courtyard also provides natural light and ventilation to the interior spaces, improving energy efficiency and reducing reliance on artificial lighting and climate control systems ("Courtyard House | FIGR Architecture Studio | ArchiDiaries,").

The Courtyard House in Ahmedabad, India, designed by Hiren Patel Architects, is another example of modern courtyard design in residential architecture. The house features a central courtyard that is open to the sky, creating a sense of spaciousness and openness. The courtyard also serves as a visual anchor, providing a strong focal point around which the living spaces are arranged (Gangwar & Kaur, 2018).

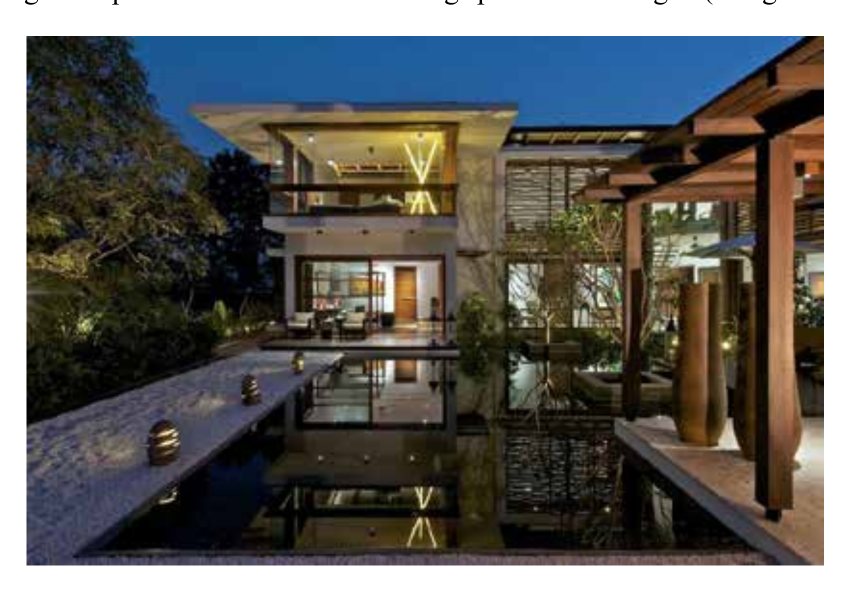


Figure 9: The Courtyard House in Ahmedabad, India, designed by Hiren Patel Architects.

Overall, these examples showcase the versatility of modern courtyard design in residential architecture, and how designers are using this element to create functional, sustainable, and visually striking homes.

H. Advantages of modern courtyard design in home architecture

Modern courtyard design offers a range of benefits and advantages that can enhance the living experience and improve the quality of life for homeowners. Some of these benefits are outlined below.

Firstly, modern courtyard design can improve the thermal performance and energy efficiency of homes by providing natural ventilation, shading, and insulation. The use of high-performance glazing, shading devices, and green roofs can reduce the amount of energy needed to heat and cool the home, resulting in lower energy bills and reduced carbon footprint (Beach et al., 2015).

Secondly, modern courtyard design can improve the indoor air quality and overall health and wellbeing of residents by increasing the amount of natural light and ventilation. The use of natural materials and green spaces can also enhance the connection with nature and create a sense of calm and relaxation (Abdelaal & Soebarto, 2018).

Thirdly, modern courtyard design can improve the functionality and flexibility of homes by creating additional outdoor living spaces that can be used for a variety of purposes. These spaces can be designed to accommodate different activities, such as entertaining, dining, gardening, and relaxation, and can be easily adapted to suit changing needs and preferences (Beach et al., 2015).

Fourthly, modern courtyard design can improve the aesthetic appeal and value of homes by creating visually striking and unique living spaces that stand out from traditional homes. The use of innovative materials, textures, and lighting can create a sense of drama and intrigue, while also enhancing the natural beauty of the surrounding environment (Abdelaal & Soebarto, 2018).

Overall, modern courtyard design offers a range of benefits and advantages that can enhance the living experience and improve the quality of life for homeowners. From improving energy efficiency and indoor air quality to enhancing functionality and aesthetic appeal, modern courtyard design is a versatile and effective design element that can transform homes into comfortable, sustainable, and visually striking living spaces.

Factors influencing courtyard design.

I. Environmental factors

Environmental factors, such as climate and location, play a significant role in the design of courtyards, as they can impact the functionality, comfort, and sustainability of these outdoor spaces.

For instance, in hot and arid climates, such as those found in the Middle East, courtyards are traditionally designed to provide shade and cooling, using techniques such as high walls, narrow openings, and water features. This helps to reduce solar heat gain and create a microclimate that is more comfortable for residents (Elkadi & Al-Maiyah, 2020).

In colder climates, such as those found in northern Europe, courtyards are designed to maximize solar gain and provide shelter from the wind. This is achieved through the use of glazed walls and roofs, passive solar heating, and windbreaks. These features can help to improve energy efficiency and reduce heating costs (Tabesh & Sertyesilisik, 2016).

Location also plays a role in courtyard design, as the surrounding landscape and natural features can influence the aesthetic and functional aspects of these outdoor spaces. For example, in urban areas, courtyards may be designed to provide a sense of privacy and seclusion from the surrounding buildings

and noise, while in rural areas, courtyards may be designed to blend in with the natural landscape and provide views of the surrounding scenery (Seifi et al., 2022).

Overall, environmental factors such as climate and location play a crucial role in the design of courtyards, and designers must consider these factors when creating outdoor spaces that are functional, sustainable, and visually appealing.

J. Cultural factors

Such as traditions and customs, have a significant influence on the design of courtyards. In many traditional cultures, such as those found in the Middle East and Asia, courtyards are designed to provide a sense of privacy and seclusion, and are often used for family gatherings, religious ceremonies, and social events (Adebara, 2022). These courtyards are typically enclosed by high walls or fences, and feature a central fountain or water feature, which provides a focal point for the space(Rahman & Haque, 2001).

In contrast, in Western cultures, courtyards are often designed to be more open and accessible and are used primarily for relaxation and outdoor living. These courtyards are typically designed to accommodate a range of activities, such as dining, entertaining, and gardening, and may feature outdoor furniture, cooking facilities, and decorative elements such as sculptures and water features (Hunt, 2014).

In addition to design features, cultural factors also influence the materials and construction techniques used in courtyard design. For example, in traditional Japanese courtyards, natural materials such as wood, bamboo, and stone are used to create a sense of harmony and balance with nature (Abdulkareem, 2016). In the Middle East, on the other hand, the use of decorative tiles and intricate patterns is a common feature of courtyard design (Attia, 2006; Ostromoukhov, 2006).

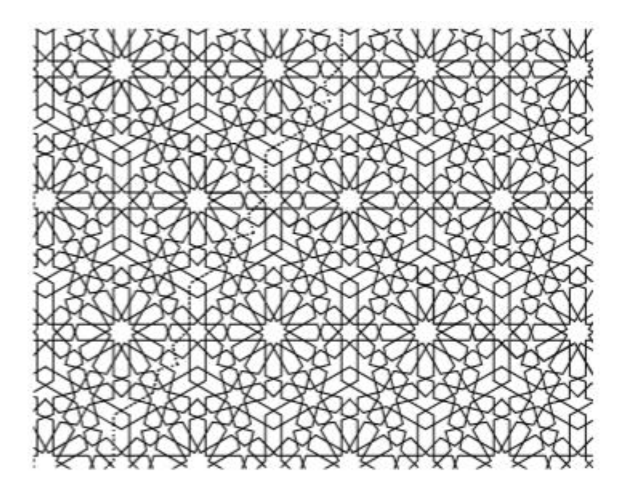


Figure 10: Mosaic tilework from the courtyar of the Attarine Medeza, Fez (Ostromoukhov, 2006)

Overall, cultural factors have a significant influence on the design and use of courtyards in different cultures around the world, and designers must take these factors into account when creating outdoor spaces that are functional, sustainable, and culturally appropriate.

K. Social and economic factors

Courtyards have been an integral part of human settlements for centuries, and their design has evolved over time to meet the changing needs of society. Today, social and economic factors such as

urbanization and demographic changes continue to shape the design of courtyards and their role in modern society.

Urbanization has led to an increase in the number of people living in cities, which has created a need for outdoor spaces that provide a respite from the urban environment. Courtyards, with their enclosed and private nature, provide an ideal solution to this need. They can be designed to provide a peaceful and tranquil environment that is shielded from the noise and bustle of the city, offering a place for relaxation and social interaction.

Demographic changes have also influenced the design of courtyards. Aging populations have led to a greater demand for accessible and safe outdoor spaces that promote health and wellbeing. Courtyards can be designed to incorporate features such as raised garden beds and seating areas, which are accessible to people with mobility issues and encourage physical activity.

Moreover, the increasing popularity of multi-generational living arrangements, such as extended families or co-living, has led to a demand for courtyards that provide a shared outdoor space for all residents. These courtyards can be designed to facilitate social interaction and community building, promoting a sense of belonging and connection among residents.

In addition, economic factors also play a role in the design of courtyards. In areas with high land values, courtyards can be designed to maximize the use of space, incorporating features such as green walls or rooftop gardens. These features not only provide an attractive and functional space but also contribute to energy efficiency and sustainable living.

Overall, social and economic factors continue to influence the design of courtyards and their role in modern society. As society continues to evolve, the design of courtyards will continue to adapt to meet the changing needs of communities.

The future of courtyard design

L. Emerging trends in courtyard design

Courtyard design has undergone significant innovation in recent years, with new materials, technologies, and design concepts emerging to shape the future of this design element.

One notable trend in courtyard design is the use of sustainable materials. Courtyards are being designed with a focus on sustainability, incorporating features such as permeable paving, rainwater harvesting, and green walls to reduce environmental impact. For instance, the "Vertical Garden City" project in Singapore, shown in Figure 11, features a courtyard with a green wall system that integrates rainwater harvesting and greywater reuse systems, contributing to the reduction of water consumption (Lim & Lim, 2021).



Figure 11: Modern architecture and vertical gardens of Singapore

Another trend is the use of technology in courtyard design. Advancements in lighting, irrigation, and heating systems are enabling designers to create outdoor spaces that can be used year-round. For example, the "Sky Garden" in London incorporates a sophisticated irrigation system that provides the necessary nutrients for plants to thrive in a rooftop courtyard (Reilly, 2019).

In terms of design concepts, a growing trend is the integration of art and nature in courtyard design. The use of art installations and sculptures in courtyards can create a unique aesthetic experience for visitors, while also promoting a connection with nature. The "UCCA Dune Art Museum" in China shown in Figure 12, features a courtyard that incorporates a large-scale sculpture that mimics the surrounding sand dunes, creating a seamless transition between art and nature (Asman, 2020).



Figure 12: UCCA Dune Art Museum in China

Finally, there is an increasing focus on designing courtyards that promote well-being and mental health. Elements such as natural light, greenery, and water features are being incorporated into courtyard design to create spaces that promote relaxation and stress reduction. For example, the "Garden of the Four Seasons" in Switzerland features a courtyard that incorporates a water feature and a variety of plants to create a tranquil and calming environment (Brundu et al., 2020).

In conclusion, new materials, technologies, and design concepts are shaping the future of courtyard design. The use of sustainable materials, technology, art, and well-being design concepts is contributing to the creation of courtyards that are functional, aesthetically pleasing, and environmentally conscious.

M. Sustainable courtyard design practices

Designers are increasingly incorporating sustainable design practices into courtyard design, recognizing the potential for courtyards to promote sustainability and environmental stewardship.

One way in which designers are promoting sustainability in courtyard design is through the use of permeable paving materials. Permeable pavements allow water to seep through the surface and be absorbed by the soil, reducing the amount of runoff and promoting groundwater recharge. This approach has been successfully implemented in the courtyard design of the Bertschi School Living Building in Seattle, which features a permeable pavement courtyard that filters and manages rainwater runoff (Parker, 2021).



Figure 13: Bertschi students at the Ecohouse greenwall (Photo: Business Wire)

Green roofs and walls are another sustainable design element being incorporated into courtyard design. Green roofs and walls improve air quality, reduce heat island effects, and provide habitat for pollinators and other wildlife. The courtyard of the " The Ningbo Construction Committee Training Centre (NCCTC)" in Zhejiang Province of China features a green wall system that reduces heat gain and provides a visual connection to nature for the building occupants (Li et al., 2019).

In addition to these design elements, designers are also incorporating sustainable water management systems into courtyard design. Rainwater harvesting systems, such as those used in the "Vertical Garden City" project in Singapore, refer to Figure 14, capture rainwater for reuse in irrigation, reducing the demand for potable water (Lim & Lim, 2021; Velegrinis & Weller, 2007).



Figure 14: Vertical Garden City project in Singapore

Designers are also promoting sustainability in courtyard design through the use of renewable energy sources. Solar-powered lighting and irrigation systems, for example, reduce the reliance on non-renewable energy sources and promote energy efficiency. The "Outdoor Solar Courtyard" at the University of California, Santa Cruz features a solar-powered lighting system that provides energy-efficient lighting for the courtyard (Coronel & Alvarez, 2001).

In conclusion, designers are incorporating a range of sustainable design practices into courtyard design, including permeable paving, green roofs and walls, water management systems, and renewable energy sources. These approaches demonstrate the potential for courtyards to serve as effective tools for promoting sustainability and environmental stewardship.

N. Impact of technology on courtyard design

Advances in technology are rapidly shaping the future of courtyard design, providing designers with new tools and techniques that enable them to create more innovative and dynamic courtyards. Here are some of the ways in which technology is transforming the design of courtyards.

Virtual and augmented reality (VR/AR) - These technologies are revolutionizing the way designers can visualize and present their courtyard designs. By using VR and AR, designers can create virtual walkthroughs of their designs and allow clients to experience the space in a more immersive way. This enables them to test out different design options and make changes before construction begins.

3D Printing - 3D printing technology has the potential to transform courtyard design by allowing designers to create complex and intricate shapes and forms that were previously impossible to achieve. With 3D printing, designers can create custom-made elements for courtyards, such as intricate light fixtures, unique sculptures, and ornamental detailing.

Sustainable Materials - Advancements in technology have led to the development of new sustainable materials that can be used in courtyard design. These materials are not only environmentally friendly but also durable and cost-effective. Examples of sustainable materials include recycled plastic, bamboo, and repurposed wood.

Smart Technology - Smart technology has transformed the way we interact with our environment, and courtyards are no exception. Designers can incorporate smart technology into courtyard designs, such as automated irrigation systems, lighting systems that adjust to the time of day, and temperature control systems. These systems can be controlled remotely, allowing for greater control and efficiency.

Advanced Lighting - Lighting is an essential element of courtyard design, and advances in technology have led to the development of new lighting systems that can create dynamic and visually stunning spaces. For example, programmable LED lighting can be used to create a range of lighting effects and can be controlled remotely, allowing for greater flexibility.

In conclusion, technology is rapidly transforming the field of courtyard design, providing designers with new tools and techniques to create more innovative and dynamic spaces. From 3D printing to sustainable materials, smart technology, and advanced lighting, designers have a range of options to choose from to create unique and functional courtyards.

Conclusion

O. Implications of courtyard design on the future of home design

Courtyard design is a powerful element of residential architecture that has the potential to influence the future of home design in a number of ways. Here are some of the broader implications of courtyard design on the future of home design:

Indoor-outdoor integration - Courtyards are an effective way to integrate indoor and outdoor living spaces, creating a seamless transition between the two. This integration is likely to become an increasingly important aspect of home design, as homeowners seek to connect more with nature and create a sense of openness and flow in their living spaces.

Sustainability - Courtyards can be designed to incorporate sustainable features, such as rainwater harvesting, green walls, and renewable energy sources. As sustainability becomes a more pressing concern for homeowners, we can expect to see more homes incorporating courtyards as a way to meet these goals.

Privacy - Courtyards provide a private outdoor space that is shielded from the street and neighboring properties, making them an attractive option for homeowners who value their privacy. This emphasis on privacy is likely to become even more important in the future, as urbanization and population growth continue to increase.

Flexibility - Courtyards can be designed to serve a variety of purposes, from outdoor living spaces to gardens, pools, and play areas. This flexibility is likely to become increasingly important in the future, as homeowners seek to maximize their living spaces and create homes that can adapt to changing needs over time.

Wellness - Courtyards can be designed to promote health and wellness, with features such as greenery, water features, and outdoor seating areas. As more people prioritize wellness and mindfulness in their lives, we can expect to see more homes incorporating courtyards as a way to support these goals.

In conclusion, courtyard design has a number of broader implications for the future of home design, from indoor-outdoor integration to sustainability, privacy, flexibility, and wellness. As homeowners continue to seek out innovative and functional living spaces, it's likely that courtyards will play an increasingly important role in residential architecture in the years to come.

P. Call to action!

As we have seen, courtyard design has the potential to significantly impact the future of home design. It can influence everything from indoor-outdoor integration to sustainability, privacy, flexibility, and wellness.

Therefore, architects and designers should think critically about courtyard design and its potential impact on the future of home design. As the housing market continues to evolve, it's important for architects to stay ahead of the curve and explore innovative solutions that meet the changing needs of homeowners.

Let's explore the potential of courtyard design and work to create homes that reflect the changing needs and desires of homeowners. Together, we can shape the future of home design and create living spaces that are truly transformative.

As technology continues to advance and homeowners seek out innovative and functional living spaces, courtyard design is poised to play an increasingly important role in the future of home design. Therefore, I encourage architects and designers to think critically about the potential impact of courtyard design on residential architecture and to engage in further research and discussion on this topic.

By exploring the benefits and challenges of courtyard design, architects can gain a deeper understanding of how this design element can be used to create more sustainable, flexible, and wellness-oriented homes. They can also learn from the experiences of other architects and designers who have successfully integrated courtyards into their projects.

Furthermore, architects can collaborate with other professionals, such as landscape architects, engineers, and builders, to develop more holistic and integrated approaches to courtyard design. By working together, they can leverage their collective expertise and create truly innovative and dynamic living spaces that meet the changing needs of homeowners.

In conclusion, we invite architects and designers to embrace the potential of courtyard design and to engage in further research and discussion on this topic. By doing so, we can create homes that are not only functional and beautiful but also sustainable, flexible, and supportive of people overall wellbeing.

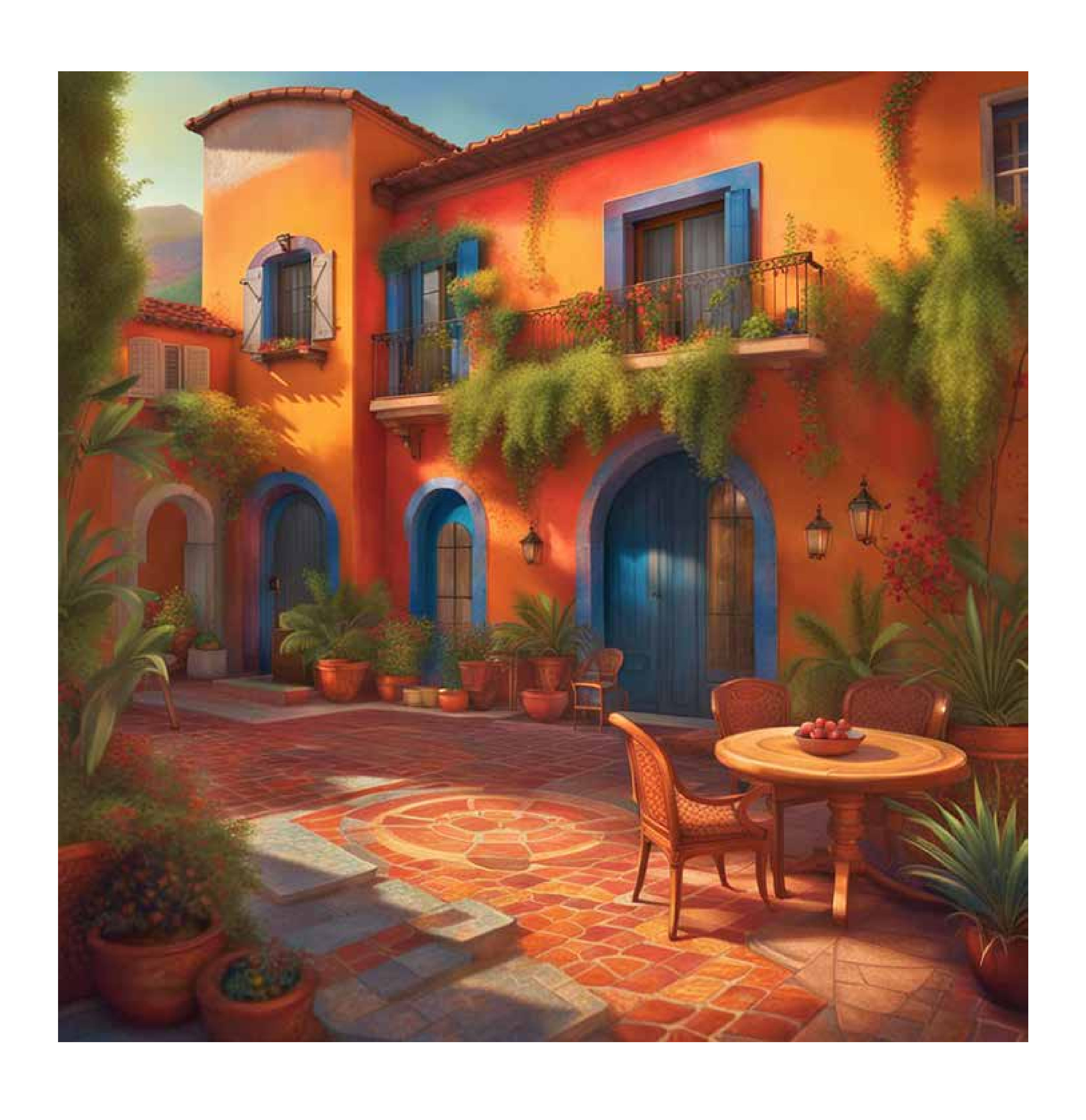
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Mediterranean courtyards, by Night Cafe

07

DIMENSIONS OF SUSTAINABILITY IN COURTYARD HOUSES IN MENA REGION

AMER AL-JOKHADAR, SABA ALNUSAIRAT

Abstract

Vernacular courtyard houses are the most spread types of residential buildings in the hot-arid regions of the Middle East and North Africa. These houses offer a successful example of socially cohesive and healthy environment and could be considered as a reference for sustainable solutions. This research seeks to investigate dimensions of sustainability of vernacular courtyard houses, by focusing on the different social, environmental, and economic qualities. The aim is to learn from the previous experiences for generating contemporary developments that could enhance the social life and the well-being qualities.

Keywords

Courtyard, sustainability, morphology, social qualities,MENA region.

Introduction

Rather than focusing solely on technological advancements, sustainability looks to ensure the continuation of human life and foster harmony across the economic, environmental, social, and cultural spheres. Economic sustainability depends heavily on factors like low operating costs and the utilization of local materials. The local climate should be considered to provide thermal comfort and energy savings at the level of environmental sustainability. Achieving social and cultural sustainability entails prioritizing people and their needs when making decisions about product design and development (Schwarz and Krabbendam, 2013; Woodcraft, 2012). The purpose of this study is to assess the sustainability of MENA courtyard dwellings.

The Morphology of Vernacular Courtyard Houses

Broadly, houses in hot-arid climates have evolved to take use of the environment in which they are located. Most dwellings face inward, with the living quarters clustered around an enclosed outside area (courtyard). This popular dwelling type was widely dispersed throughout the research region, both in rural and urban settings (Bianca, 2000; Taylor, 1985; Al-Masri, 2010).

Rooms in courtyard houses might be found on any side of the airy atrium, providing a variety of options for spatial organization (Ebadi et al., 2014). Typically, there are two distinct types of houses seen in arid climates: atrium houses and patio houses (Table 1). The first variety has a courtyard at its core. It's multifunctional as a passageway, a hangout spot, and an entry point to the adjoining rooms. In a patio house, the building volume is broken up into a series of smaller courtyards that serve to let in more natural light and provide a sense of space between the various rooms (Pfeifer and Brauneck, 2008).

Table 1: Schematic layout of traditional houses in different climatic zones. (Adapted by Authors, after (Ebadi et al., 2014))

Climate	Hot-Arid		Cold	Humid-Moderate	Hot-Humid
Type	Atrium-Type House	Patio House	Garden Courtyard House	Four-Sided Garden House	L-shaped House Type
Schematic Layout of Traditional Houses : Solid : Void					

The roof of the North African style and the Middle Eastern style are very different from one other, but it is crucial to note that in the Anatolian type (Turkish style) and houses in Lebanon, the house created a pavilion-like structure within an enclosed plot. In addition, a roofed-over hall might be present where a courtyard once stood. Nonetheless, like the courtyard, this hall serves as a place to congregate and pass through. The demand for shelter from the severe weather and the resulting floods drives these shifts. Houses in Yemen that are typical of the South Arabian tower style and in some parts of Saudi Arabia (like Jeddah and Mecca) of the Red Sea type may lack a courtyard since they have been built upwards.

Social-Cultural Dimension of the Vernacular Model of Courtyard Houses

How people live their social, cultural, and behavioral lives inside the built environment is crucial to the building's unique identity and character (Bahammam, 2006). The following is a summary of some indices of social sustainability in MENA region vernacular courtyard houses:

Population Density and Crowding

As locals have the best idea of what kinds of rooms are necessary in a house, they have been the primary source of inspiration for vernacular architects. Hence, every room in the house serves a certain purpose (Goethert, 2010). The interiors of most houses are reasonably compact in comparison to the needs of their occupants, and rooms could serve many purposes.

Hierarchy of Spaces

It was obvious that there was a hierarchy between public, semi-public/private, private, and intimate areas. One of the most important social prerequisites for a community is a safe space for families to live in peace and quiet. There are no sightlines from the entry hall, where male guests are greeted, to the kitchen, sitting room, or bedrooms, which make up the private domain (Zako, 2006). Depending on how it is set up, the entry side of the courtyard could double as a male guests' greeting area. Being a semi-private area, the courtyard is strategically located near the home's core to offer maximum privacy and convenience for its residents.

Social Interaction

Courtyards, iwans, covered living areas, and alleys encircling traditional residences all serve as gathering places for neighbors and friends. In the city, it is usual for families to share a room in a large home, and the courtyard can be a great place to meet new people (Goethert, 2010).

Accessibility

The covered central hall served as the gateway to the private quarters, or the courtyard if the latter was unavailable. This spatial configuration might provide the family with an easily navigable environment. In addition, a flight of stairs running parallel to the courtyard provided access to the roof terraces. However, elderly, and young residents may have trouble getting about the house because of the many thresholds that separate the interior from the courtyard. Furthermore, in traditional vernacular tall buildings and multi-floor residences, the upper floors are reserved for the living areas and bedrooms.

Visual Privacy

Important factors in achieving a high level of privacy for the family include courtyards, the arrangement of transitional spaces and internal circulation, the bent entrance passageway from the street, topological relationships between rooms, and the hierarchical transition from public to private zones and from formal to fewer formal spaces (Taylor, 1985; Mitchel, 2010).

Residences have high outside walls at ground level, with well-balanced window and door placement. The purpose of these coverings is to prevent others from seeing into a home from the street. In addition, the low placement of windows (175 cm above the ground) and the use of wooden latticework (known as '*qbu*' in the Maghreb,'*mashrabiyya*' in Saudi Arabia, and '*rawshan*' in Iraq) serve to shield the inhabitants from prying eyes while still allowing them to look out onto the world beyond (Mortada, 2003). Larger homes typically have two entrances, one for visitors and one for the residents' exclusive use. In accordance with the bent-entrance idea, entrance halls are placed slightly off-center, and angular hallways or screen walls are built in front of the door (Zako, 2006; Bianca, 2000; Ragette, 2003).

More 'deeply' private quarters (or *'hareem* area' as known in Arabic) are reserved for women, female guests, and children (Crouch and Johnson, 2001). Women can see both the public and semi-public areas of their homes without being observed by visitors, thanks to the unique treatment afforded to apertures in that area. Larger homes also tend to have more open floor plans, giving women more freedom to move about and exert more control over household activities without fear of being followed or spied on (Zako, 2006). Gender separation and visual seclusion, or 'aura' in Arabic, can be maintained in a variety of ways, including through the use of transitional spaces, multiple courtyards, a second entry, and the allocation of private spaces (such as a family room and bedrooms) on the first floor of large houses.

Acoustical Privacy

Male, female, and service areas are all connected via the courtyard and kept acoustically isolated from one another via hallways, semi-open areas, and circulation spaces (Sobh and Belk, 2011; Al-Kodmany, 1999). To prevent sounds from reverberating through the streets and bothering nearby inhabitants, it is important to treat walls and floors with dense materials (stone, or mud brick) and to construct high walls (Sözen and Gedk, 2007; Mortada 2003). Yet, such alterations may reduce usable area, block the passage of natural light and air, and cut off access to exterior streets and lanes. There may also have a negative impact on acoustic privacy due to the proximity of houses in clusters if there is no setback between them.

Olfactory Privacy

The direction of services and the presence of a courtyard play crucial roles in preventing the spread of cooking odors to other rooms, most notably the guest area (Othman et al., 2015).

Spirituality

The symbolic and intentional alignment of rooms within a home may have religious significance. In addition, inhabitants benefit psychologically from the paradisiacal symbolism of green spaces and fountains in courtyards (Reynolds, 2002).

Security and Safety

Even though the courtyard is seen as a safe place to do household chores and let the kids play, it may have a negative impact on the family. Fear and criminal activity may rise in such an open area, which contrasts with the dense housing nearby (Al-Thahab et al., 2014).

Views to the Exterior

Open floor plans, courtyards, roof decks, and balconies are defining characteristics of older homes. These areas allow natural light and air to enter because of their connection to the outside world and the sky above. Little windows facing the street or alley and the courtyard's central location may reduce the sense of connection between the home's occupants and the neighborhood at large (Al-Kodmany, 1999).

Availability of Services

Traditional house plans place a premium on providing ample space for storage. This section of the home is usually distinct from the main foyer and the sleeping quarters. When there are multiple stories in a home, the basement is typically used for parking and serving as a storage area, kitchen, and bathroom. Such a vertical separation of zones, as well as the scarcity of bathrooms on the higher floors, may, nevertheless, influence the contentment of the household.

Hygiene

A variety of methods were used by people in the Middle East and North Africa to ensure that their homes met the standards for cleanliness. Houses have gates and thresholds where guests are required to remove their shoes. Steps inside the home, leading to a landing where shoes and tools are stored, are another answer to this need. However, these factors could restrict your freedom of movement when within the residence.

Environmental Dimension of the Vernacular Model of Courtyard Houses

People of hot-arid locations choose to keep their homes enclosed by including a courtyard, which provides most of the missing elements (Noor, 1986). This treatment has the potential to strike a balance between the needs of the occupants and those of the surrounding environment, leading to an increase in thermal comfort within the dwelling.

Orientation and Spatial Arrangement of Spaces

Most spaces are located on the southern and the northern parts of the courtyard, while the western part is the least used direction. This method is employed to shield areas from the sun's rays and heat absorption (Foruzanmehr and Vellinga, 2011), while also acting as a barrier to the north wind to reduce heat losses in the northern part of the home, where the wintertime habitation quarters are situated to take advantage of the sun's rays and heat capture (Ragette, 2003). In addition, there are areas on both the east and west sides of the courtyard that can be used throughout the spring and fall seasons (Figure 1).

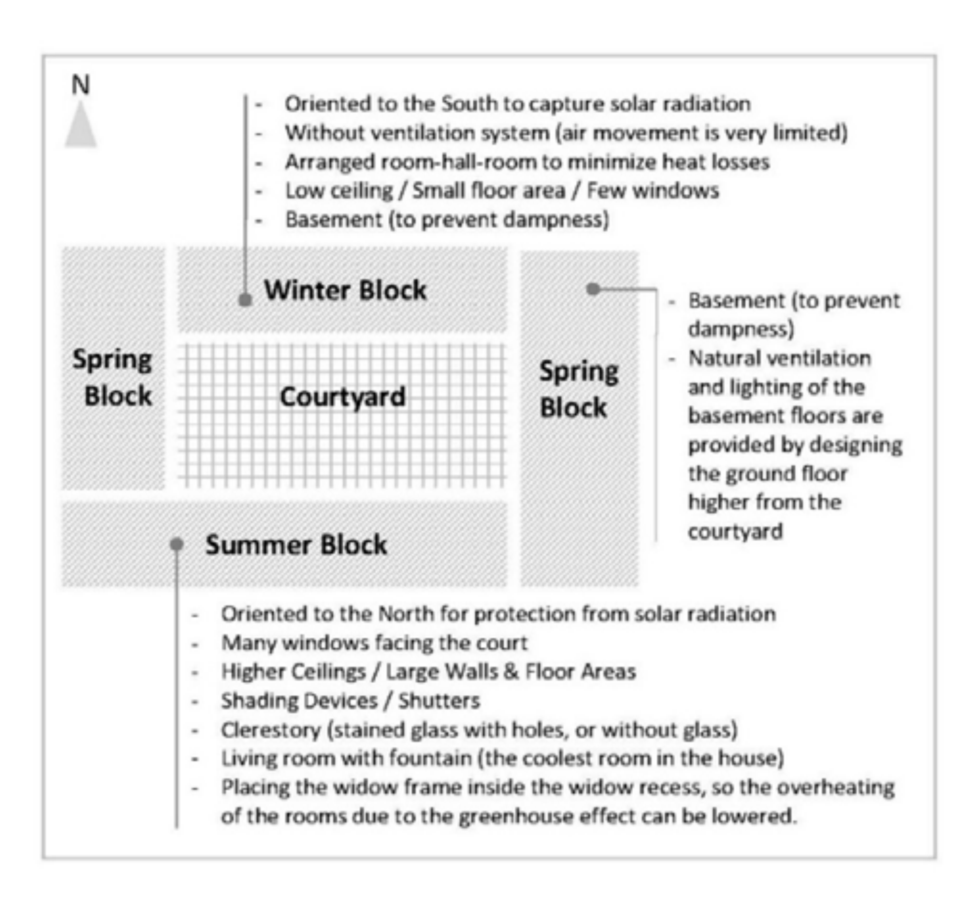


Figure 1: Zoning for a typical traditional courtyard house in hot-arid regions *(Authors)*

Cooling and Humidify the Dry Air

The use of soft and hard landscaping (such as trees, pavements, and high walls) in courtyards, especially water features like fountains (*nafora*), water jugs at the lowest part of the house or sometimes below the ground, cooling plates (*salsabil*), which allow the water to drop on a marble surface, and the use of these features, all play an essential role in cooling both the building and the human skin surface, and increasing evaporation rates quickly, which maintain a lower and more comfortable temperature In addition, the house's cooling room was a semi-open room (*iwan*) whose front open surface faced the north and the courtyard.

Encouraging Air Movement

Courtyards and semi-open spaces like galleries, iwans, and arcades are great moderators that facilitate the movement of cooling breezes throughout the home. A wind tunnel and cross ventilation are created when windows are opened on opposite sides of a room that faces the exterior and the courtyard, and when the right plants are used to direct the airflow into the structure (Reynolds, 2002). Yet in some areas, such as the Gulf region, this could allow dust and noise to enter. The problem was resolved when an alternative method of ventilation was introduced into the conventional homes. To promote air flow and block dust from entering the home, they built wind towers (*malqaf* or *badgir*). These ducts bring in pure air from the courtyard and distribute it to the ground floor residential quarters (Bianca, 2000; Oliver, 2003). Placing wet canvas or water jars in the line of the wind might increase the cooling impact due to evaporation (Ragette, 2003). There is a bottom closure on the wind tower that is put in place during the winter months. Moreover, erecting a taller wall downwind of the courtyard with an opening at the base could improve the circulation of fresh air.

Minimizing Solar Radiation

Direct sunlight and solar gain can be reduced by careful placement and the use of plants, native materials, awnings, and other shade measures (Ragette, 2003). Some comments and advantages of passive design features and design decisions that were used in traditional houses and have the potential to lessen glare and solar radiation are as follows: Balconies and gallery spaces (*iwan*) provide shaded buffer zones between the hot open spaces of the courtyard and the cold rooms; south-facing high-level windows and recessed openings screened with awnings; the use of vegetation and plants to shield roofs and walls; and the use of north-facing rooms with large windows are preferred in summer to provide coolness (Samizay, 2010).

Strategies for Winter Warmth

Room-hall-room layouts with low ceiling heights, compact floor areas, and high windows set outside opening recesses were common in homes located in hot-arid

climates since this orientation provided the most comfortable living conditions during the winter months. These modifications have the potential to maximize daylight and prevent heat loss (Sözen and Gedk, 2007). In addition, people in many dry areas covered the south and east walls of their semi-open spaces, like arcades, with glass to let in as much natural light as possible. In certain places, like Lebanon, the courtyard was roofed and evolved into a more formal "central hall" home, where all rooms are accessed from this central area that also serves as a reception area, dining room, and other household functions.

Economic Dimension of the Vernacular Model of Courtyard Houses

There are numerous monetary advantages to living in a courtyard home. For instance, it enables a high density of buildings on the land. Since there is no rear or side yard, it could be joined to neighboring homes via common walls on three sides. The construction and infrastructure expenditures, as well as the yearly energy and water expenses, are drastically cut down on account of this compact design (Pfeifer and Brauneck, 2008; Tabesh and Sertyesilisik, 2015). Even yet, such a vast tract of land might change the distribution of parks and other urban amenity places (Modi, 2014).

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08

THE SOCIAL, ECONOMIC AND ENVIRONMENTAL PROBLEMS ASSOCIATED WITH THE EXISTANCE OF SEMI CENTRAL SQUARES (MAIDEN) AND ALLEYS (HARA) AS A RESULT OF COURTYARD HOUSES IN ANCIENT CITIES

BASSAM ALI HASSAN, IBTIHAL EL-BASTAWISSI

Abstract

Deterioration of urban areas in ancient cities resulted from several reasons showing a weakness in the human aspect in maintaining them. This is due to the inability of the population residing in these areas to satisfy their basic social, economic and safety needs. Furthermore, this makes these areas significantly different in shape, composition, urban expression and interaction from areas in modern cities. This study dwells on the importance of paying attention to the nature of interaction between human activities and spatial aspects as a basic point toward the evolution, development and rehabilitation of ancient cities.

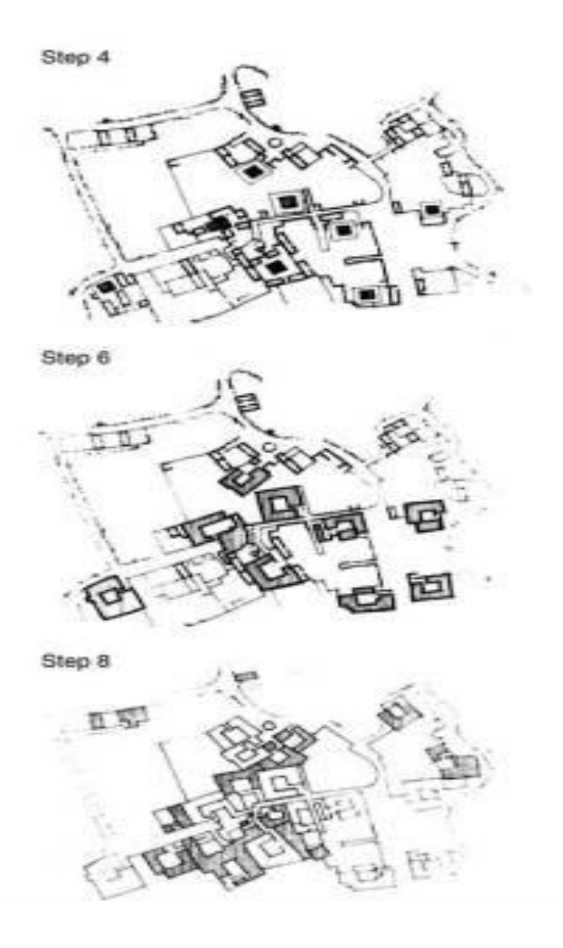
Keywords

Ancient Cities, Economic, Social, Rehabilitation, Development.

Introduction

The historical Arab locations that have emerged within the different eras presently became the old quarters in new cities. This has resulted from the increase of population density and the emergence of new locations and quarters according to the planning and architectural circumstances. In addition, physical needs led to the movement of the original owners to new quarters; and the migration of countryside residents to these old quarters to settle in them. This is because old quarters provide low-cost basic living needs, diversity in the volume and composition of the residence units; in addition, to being located near to the work centers (Figure 1).

Figure 1: Cluster of Traditional Islamic Neighberhoud Setting.

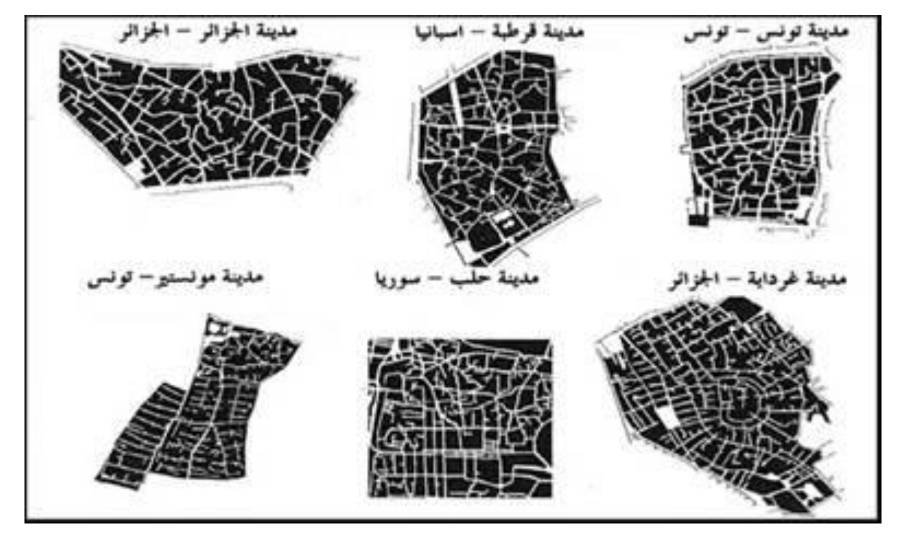


Source: Howard Davis (1999)

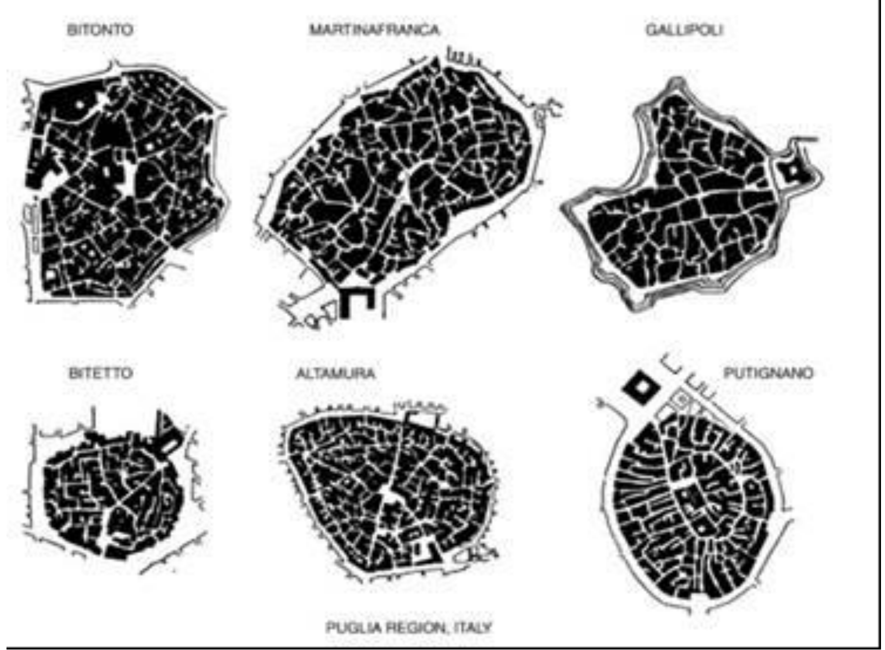
This situation led to an increase on the demand on basic services such as drinking water, drainage, electricity, health and service centers in these historical locations accompanied with difficult living conditions experienced by those people. Hence, this condition has put researchers, organizations and governments facing challenges to find immediate and temporary solutions to stop this socio-economic and environmental deterioration. Lynch (1972) for example mentioned that the support of planning directions which appeared in the nineties in the wake of the problems that were experienced by many of these historical locations from negligence and construction crawling to these locations need to be addressed (Lynch, 1972). Moreover, Jean Claude Regeh, Secretary General of the Union of Architects, declared that UNESCO charter explicitly means, “We do not own the world we are living in, but simply we should inherit it to our children”. Therefore, the historical knowledge must reach the society in order to enjoy it and learn from it. It is true that words and pictures present so many things but the real concrete things leave a profound impact. From here, the idea of rehabilitation and development of Historical Arab locations

instead of its destruction was established; either through preserving them or through changing their functions in order to suit some activities that help in achieving economic revenue. This would benefit the society in particular and the city in general. From this standpoint, countries have shown interest in the rehabilitation of historical locations (Conference of International Union of Architects, 2004). This study focused on the public spaces by upgrading their architectural, human, social, cultural, economic, environmental, regulatory and administrative aspects to meet with the various attempts on the international level in order to maintain both cultural and natural heritages (Figure 2).

Figure 2: Comparison between Six Cites on the Midterranean and Six Cities in Italy.



Source: Hakim (1986)



Source: Guidoni (1979)

Objectives

The study started with a group of assumptions that can be summarized as follows:

1. There is always a continuous interaction process between man and place.
2. Any defect that occurs to the public spaces and appears on old quarters is caused by a defect in the human aspect.
3. Problems occurring inside the old quarters of the city are problems that accumulate over time, which lead to its aggravation on both human and spatial levels of the city.

Thus, the objectives needed to be achieved in the rehabilitation of the public squares in the historical Arab locations or old quarters include ways to achieve the successful economic, social and environmental investment opportunities. These objectives required strategies that focused first on the human activities of economic, social, cultural and entertainment aspects. Second, the rehabilitation of the urban environment and its surrounding which helped in making the old quarters places suitable for the meeting and living of all residents and visitors categories of different ages, nationalities and cultures. Third, to maintain the urban and architectural style of the surrounding urban environment and its rehabilitation in order to clarify the historical dimension where it can be invested in various human activities. Forth, reduce the sources of various kinds of pollution and provide the safety means as well as develop the means of communication between the public spaces and the areas surrounding them.

Methodology

The aim of this study as mentioned earlier was to determine ways by which rehabilitation and upgrading of the old quarters or the public spaces of the historical Arab locations can take place; as well as, the impact that it causes through studying the relationship between the spatial aspect (physical environment) and the human aspect (human activities).

The study was divided into three stages. The first stage focused on showing the importance of old quarters i.e. gathered spaces and public squares in the Arab locations, their historical development and the problems they are currently facing. A comprehensive review of the Arab city will be conducted, its notion, types of public spaces, the link between the elements as well as how to settle the problems within the theoretical framework; variations and relationships between them and all related duties, methods and data collection tools (Figure 3).

Figure 3: Aleppo Old Quarters and Historical Public Spaces and Squares.



Source: Aleppo Municipality (2006)

The second stage included the study of the Arab cities that have common characteristics and conduct the analysis among them (Figure 4).

Figure 4: Tripoli and Saida Cities Khans (Motels).



Source: Tripoli and Saida Municipality (2006)

In the third stage, a practical framework is done in order to disclose the results and recommendations.

Results and Discussion

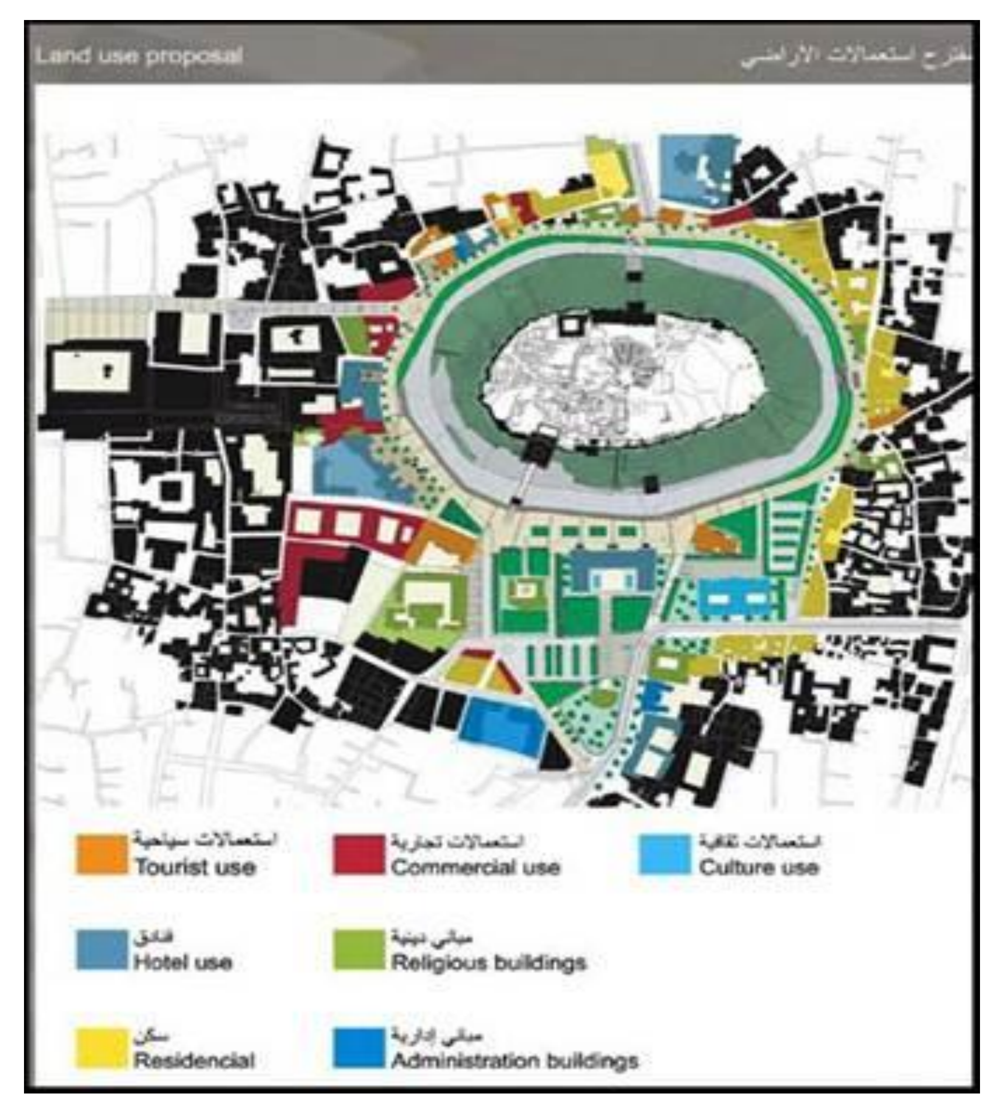
Results and discussions of this study was divided into several sections including first the policies and decisions at the narrower level of the old quarters

(squares and their urban surroundings). The urban spaces played a prominent role as an essential linking element between the urban fabric of the city and the internal spatial composition of the ancient regions. The urbanization of old areas through the upgrading of the urban spaces that comprise this fabric in accordance with advances in human needs. Second, supporting the role of the urban fabric in conveying a sense of comfort to residents and passers-by through improving the efficiency of the urban spaces that comprise the urban fabric, including the tangible and tangible material aspects. There are many aspects through which emptiness contributes to conveying a sense of comfort, and they are all related to the basic human senses. It can be realized and limited to through visual comfort, ease of breathing and sniffing of clean nonpolluted air. Third, supporting the role of the urban fabric in conveying a sense of social integration. This can be achieved by strengthening the sense of belonging to the place and belonging to the group by drawing circles of interaction between the population at different levels. Finally, by aiding in the contribution of the urban fabric to the expression of a feeling of self-realization which is regarded as the ultimate human need. People express this sentiment in many ways, especially in slum areas, and this may be reflected in the urban spaces that make up the urban fabric at a variety of levels. These levels include granting the individual the freedom to express himself within the framework of the group (through certain treatments, the use of materials, and colors), as well as permitting individual oversight over aspects of public property, which can be accomplished through membership in civic associations.

Conclusion and Recommendations

In conclusion and in light of the examination and evaluation of the old quarters, it has been found that these require several aspects that would act in maintaining and elevating these areas. These include availing infrastructure; heritage and archeological sites preservation, environmental services and social interaction. Hence, a set of recommendations can be made, the most important of which are first, providing all basic services (paving, sanitation, garbage receptacles, phone booths, lighting, drinking water, etc.). Second availing the areas with all the necessary guiding signs. Third, taking care of the environment by securing green trees, fountains and water basins. Forth, continuing the maintenance and rehabilitation of the built environment surrounding these areas by restoring and painting the facades, greasing the stone facades, removing weeds, and reinforcing the walls. Fifth, reusing the old buildings for social services. Finally, introducing in the curriculum of the primary educational system lessons and target themes by which learners learn and acquire the skills of preserving these old quarters (Figure 5).

Figure 5: Comprehensive Rehabilitation of Aleppo.



Source: Aleppo Municipality (2006)

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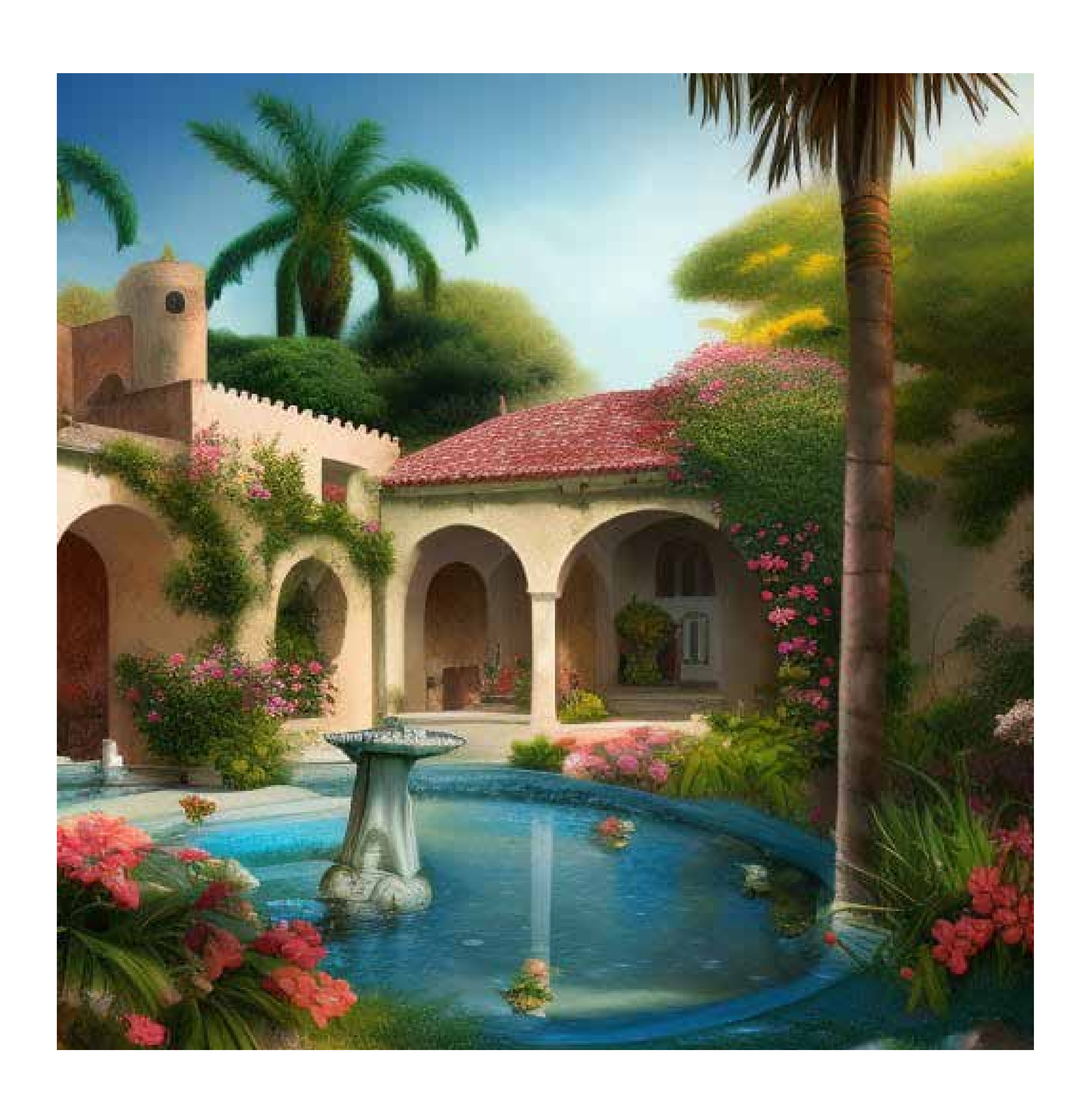
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9 The Social, Economic and Environmental Problems Associated With The Existance of Semi Central Squares (Midan) and Alleys (Hara) as a Result of Courtyard Houses in Ancient Cities



Mediterranean courtyards, by Night Cafe

09

THE LANGUAGE OF MEDITERRANEAN ARCHITECTURE: A BRIEF OF THE COURTYARD IN LEBANESE HOUSE, ZGHARTA HOUSE AS A CASE STUDY

DANA K. SWEIDAN

Abstract

The relationship between architecture and the natural environment is highly valued in Lebanese architecture. Because of this approach, Lebanese courtyard houses are distinctive as well. This article represents an attempt to understand the courtyard in a Lebanese house through the chosen modern case study. And linking the case study briefly to the Lebanese house through «architecture in Lebanon by Ragette» book. According to the architects' insight, the Lebanese courtyard's spirit hasn't altered with its similarities to the courtyards of Mediterranean homes in several ways.

Keywords

Lebanese dwelling, natural environment, patio, Liwan.

Introduction

"The courtyard kept changing, dazzling her with the flowers that bloomed between one day and the next, with the bare branches of trees that were swollen with the buds of new leaves and then fuzzed with green. Every day, she drove a familiar road through a new place."

- Anne Bishop

The earliest cities ever created were in the Mediterranean region, which has witnessed and been impacted by many different civilizations (Phoenicians, Greeks, Egyptians, Romans, Muslims, etc.)

Most Mediterranean countries are still correlated to their opulent heritage. Lebanon is one of them. Its architecture is more than just a simple combination of brick, mud, sand, and stone; but, it is a representation of culture, history, and beliefs.

The main concept of Lebanese architecture, which appears clearly in dwelling s; is the strong bond and concord with nature; Lebanese land is bordered by the Mediterranean Sea and a high range of mountains; so it has a very rich natural environment. Because of this, the earliest dwellings in Lebanon were built using the vision of simplicity and proportion, which reflects the way of the living environment, The Lebanese used nature as a type of fence to protect their privacy and independence, would take care of the land that they owned and develop it to be able to dwell on more than just a shelter, whether by a small window, a balcony, a series of arcades, a gallery, a patio, or the courtyard, as indicated by this paper.



1: The figure shows a courtyard in Deir al-Qamar, Mount Lebanon, Lebanon. The courtyard of a traditional Lebanese house usually includes the view: because it necessarily has a mountain slope, fountain, citrus and olive trees, grapevine on the rooftop, and seating

The Courtyard in Lebanese dwellings

As previously mentioned, Lebanese architecture sets a high emphasis on how it interacts with the natural environment. The Lebanese courtyard dwellings also stand out because of this approach. It provides an open side to the scenery of the mountain ranges, reinforcing, consequently, this interaction between the built and the unbuilt.
The Traditional: the normal Arab courtyards that are entirely walled for reasons of seclusion. in Lebanon, there is usually an open side for the view, and the Liwan can

be available on one of its other sides It is a covered terrace that only has an open side on the front. There are typically two rooms on a liwan's sides, and doorways are positioned in the front portion of the side walls. Liwan, which is considered to have

its roots in Islamic architecture, makes sense in a variety of Mediterranean climates because it provides protection from winds, heat, dust, animals, and people. And it is associated with courtyards. Whether on the inner or outer facade, the galleries are always connected to the courtyard too.



2: The figure shows the village of Bekaa Kafra in front of the village of Bsharri across the Qadisha Valley, and the richness of Lebanon's topography: through mountains, valleys, natural and even cultural environment. This is respected through construction, orientation and view.



3: A traditional courtyard Lebanese house with liwan at Baakleen which is located in Mount Lebanon, Chouf District, Bordering Towns: Deir El Qamar, Beit Eddine.

The modern: The habits of working and living have radically altered throughout time. As a result, the design has made spaces while accommodating these changes in behavior. The courtyard, however, appears to be a design feature that never seems to go out of style, this is what the case study of the modern house will clarify.
This article represents an attempt to understand the courtyard in a Lebanese house through the chosen modern case study. The Lebanese house is a Mediterranean dwelling and its identity is an integral part of it.

Research Methodology

To achieve the intended purpose the researcher follow these methods which include a case study of Zgharta house in Lebanon, the literature review, and Going back to the "architecture in Lebanon by Friedrich Ragette" book.

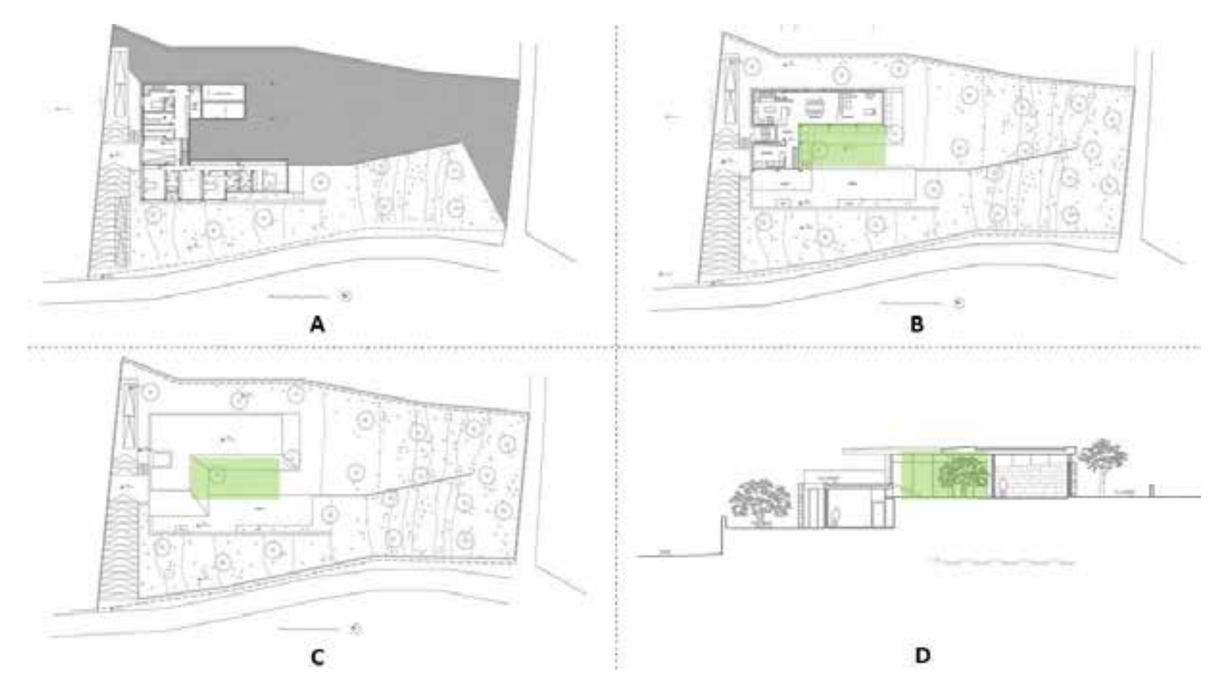
Discussion and results

Case study of a courtyard in Lebanese dwelling: Zgharta House located in Zgharta, Lebanon. This house belongs to the architect, Boulos Al Douaihy, and it was designed by him in 2012. It is situated in a Mediterranean olive grove.



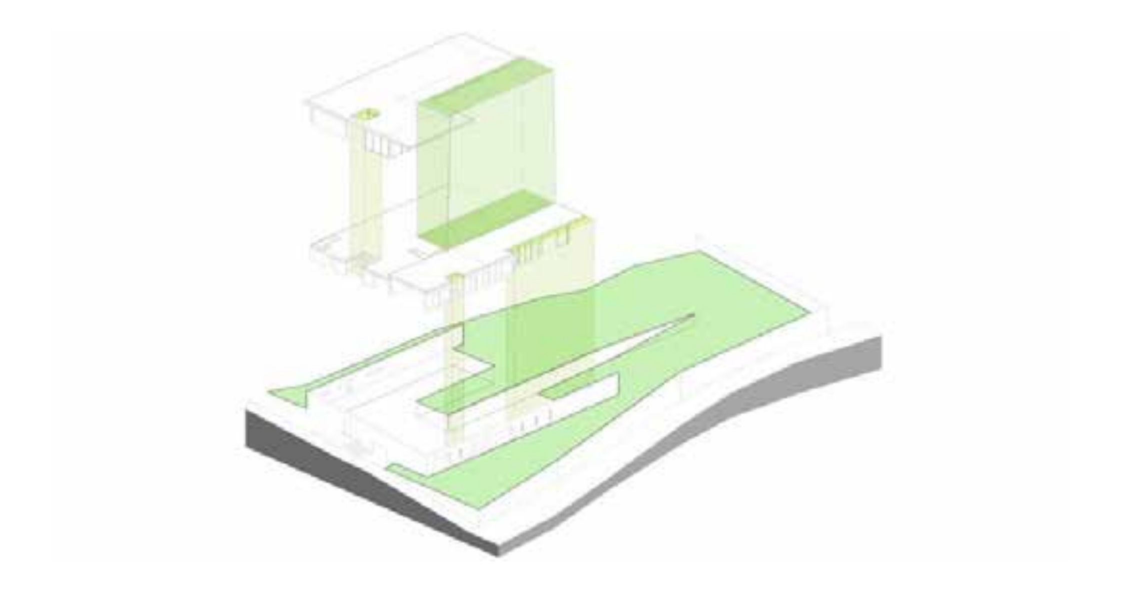
4: Zgharta House merges into an olive grove with terraces to respect the topography.

The location provides an unhindered view of the rural plain and mountains and smoothly slopes to the main road. The home deals with the terrain's sloping topography, views, and private zone by massing in two horizontal L-shaped floors that mimic the landform: Technical areas, restrooms, and bedrooms are located on the lowest floor. The main living area, dining area, kitchen, and library are all located on the top floor.



5:Figure (A)is a Basement floor plan , figure (B)is a Ground Floor Plan , figure (C)is a Roof Floor Plan and ,figure (D)is the main Section ; (B,C,D) shows the design of the courtyard in Zgharta house with its view, so it simulates the topography of the area and the appreciation the olive grove like the courtyard of the old Lebanese house.

The two horizontal levels are extruded to create a third area, an open courtyard, which enables the landscape to move all across the house. The two floors are surrounded by an intensive outer wall and a collection of enclosed patios due to a u-shaped local stone wall that runs directly around them. The patios on the lower floor are a series to fill the baths and bedrooms with natural sunlight.



6: This figure shows the model of the Zgharta house; the site and the upper and lower levels and the enclosures

Interiors, on the other hand, are entirely glazed, accessible to the seclusion of the patios, main courtyard, and far mountain panoramas. Large cantilevers on the building roof provide shade and privacy for the glass-enclosed living areas in it while merging indoor and outdoor areas. Moreover, the Curtains along the facades are completely glazed opening up to the private patios, courtyard, and distant mountain panoramas. The roof hangs above the home on massive cantilevers, providing shade and privacy to the glass living area below and blending indoor and outdoor areas.



7: The figure shows the glass facades shaded by cantilevers; Such as the internal facade of the courtyard, which is open to the view and provides privacy; as well as through the stone wall built from the stone of the area.

Conclusions

The Lebanese courtyard has many elements, comparable to the yards of Mediterranean dwellings; nevertheless, it's marked in particular by the vista, because of the topography and the rich natural environment. As a result of the architects' awareness of the exclusivity and significance of the place, the spirit of the Lebanese courtyard has not changed, in the old or the modern; for instance. The liwan in a Lebanese courtyard gathers two spaces, as the courtyard in Zgharta house connected two blocks and kept the view with the presence of trees from the Mediterranean environment inside it.

On the other hand; the Lebanese courtyard reflects the character traits of the Lebanese people, who prefer enjoyment, independence, and openness.

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10

VISUAL REPRESENTATION OF THE COURTYARD FUNCTION IN HISTORIC CAIRO

DEENA EL-MAHDY

Abstract

The courtyard was used in many historical buildings as an environmental passive cooling element especially in hot dry arid climates to mitigate the temperature and humidity of the internal spaces. In addition, the courtyard has a social aspect through using it for trading and cultural activities. This research aims at reshaping the function of courtyards at historical buildings representing their activity or their environmental role using visual contemporary art. This representation raises awareness of the courtyard's importance that encourages the reusing of them again in recent architectural spaces nowadays. Two main buildings were selected in historic Cairo to represent these ideas; Mostafa Ghafaar Al Selhdar House, Wikala of Qaitbay.

The output of the models is part of academic curricula about the history of architecture in Historic Cairo. The students succeeded to show, represent and recall the concept of the courtyard in historic buildings. The output was shared in an art exhibition at the House of Egyptian Architects under the ministry of culture. This research comes as a pilot project to present some new ways for architects and professionals about the importance of reimagining historical spaces and adaptive reuse to raise awareness of the absence of the activities that were previously carried out through contemporary art.

Keywords

Historic Cairo, courtyard, art installation, visual representation, environment/social aspect.

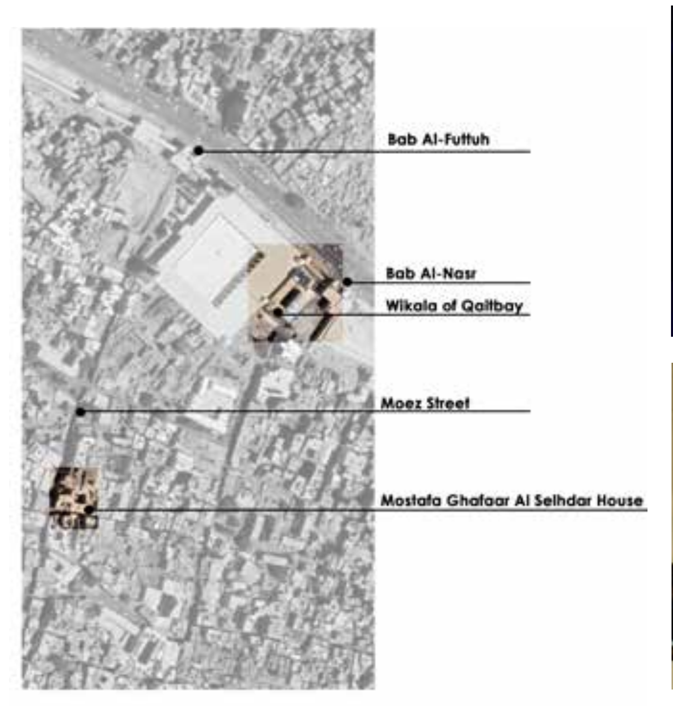
Introduction

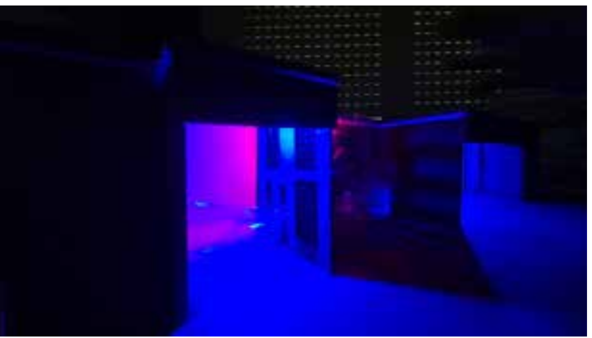
Passive cooling systems had been integrated into historical buildings for cooling responding to climatic changes especially in hot and dry climates as the Middle East. For instance, courtyards, solar chimneys, windcatchers, and Mashrabiya were acting as acclimate controllers providing cool air and temperature regulator, and humidifier. These systems are responsible for cooling the spaces and enhancing their thermal performance. Courtyards were used in many houses and Wikalas for improving the thermal performance of the spaces and reducing the temperature, especially in hot arid climates. Research done by Fahmy proved that the court-yarded clusters improved energy efficiency and de-carbonization (Fahmy *et al.*, 2022). Wind catchers and Solar chimneys are structural elements used in hot and arid regions for providing natural ventilation (Jomehzadeh *et al.*, 2020). The function of these elements is that they provide air-cooling of the warm inlet air before reaching the space based on the pressure and the density of the air without any electricity(Masrour, Abbasi and Hallaj, 2012). Trombe wall is a low-tech passive system that provides both cooling and heating to enhance the thermal performance of indoor spaces (Dabaieh and Elbably, 2015);(Dabaieh *et al.*, 2019). Mashrabiya also has been used in many historical buildings due to its multiple functions such as acting as air purification, climate controller, reducing solar radiation, light controller, and privacy (Özsavaş Akçay and Alotman, 2017).
Recently, these elements are not well-integrated into contemporary architectural applications, especially in houses, where they are replaced with HVAC systems that have a bad impact on the environment although the high energy consumption and the carbon emissions, they release affect the ozone. In addition, the air quality and its impact on indoor thermal comfort in the absence of these passive elements.

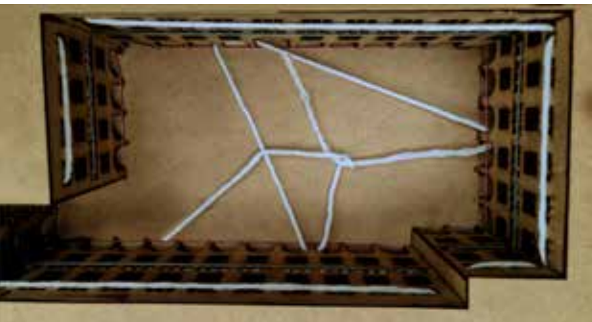
The aim of this research is to visualize the environmental passive technique of the courtyards in historic buildings using visual contemporary art. This representation raises visitors' awareness about the importance of the courtyard function which might not be felt nowadays. Two main buildings were selected in historic Cairo to represent these ideas; Mostafa Ghafaar Al Selhdar House and Wikala of Qaitbay, "Wikala" is a term for a building that is used for commercial activities. The results succeeded to reflect and visualize the unseen airflow in courtyards in a physical way using light, fabrics, and plastic. This representation can open the door for many conservation and adaptive reuse projects as a way to revive them.

Method and case study

Two building types that include courtyard were selected in historic Cairo at MOez street; Mostafa Ghafaar Al Selhdar House and Wikala of Qaitbay as shown in Fig.1. The House of Mustafa Jaafar Al-Silihdar- Waqf is one of the historical houses located in Al-Darb Al-Asfar at Al-Moez street directly next to Al-Suhaimi House. This house was built in 1713 A.D. and it goes back to the Ottoman dynasty. The house used the courtyard which is located in the middle to allow more airflow through different spaces. The Wikala of Qaitbay was built in 1481 A.D. which goes back to the Mamluk dynasty. It is located in Al-Moez street near Bab Al-Nasr. The main function of this place was used for commerce, which is a similar model of caravanserais in Turkey. It includes a place to sell merchandise which is usually one in the court area, storage places for merchants, and small accommodation units for them.
The method followed in the representation of each courtyard used different tool and materials to visualize the absence of the activity or represent the unseen environmental aspect visually. The model of the space that include the courtyard was built using MDF wood with scale of 1:50 adding after then different the art installation based on the concept of each case.







1: A Map for the selected case studies at Moez street.

2: Visualization of the airflow through the court of Mustafa Ghaafar AL-Selehdar house.

3: Visualization of the density of the people in the courtyard of Wikala of Qaitaby.

Results & discussion

Mostafa Ghafaar Al Selhdar House: This model represents the function of the courtyard which shows the distribution of the airflow alongside the surrounded spaces. This shows a way of representing the unseen factors as airflow in a physical and visual way. The relation between the cold air that has a heavy density is represented at the bottom, while the warm air with light density is located at the top.

In Wikala of Qaitbay, the idea was to represent the physical function of the courtyard by reflecting the movement of the people. The wires were reflecting the people density which is usually higher at the ground level resulted from good trading. Three colors of threads were used in this model; red at the base represents the high density and the crowdedness of this place during the trading time for the public space, grey at the first floor represents the storage areas which is less density and semi-private, and white at the top represents accommodation spaces which is more silent and private.

Conclusion

The research documented the representation and the reshaping of courtyard functions at two case studies in historic Cairo. Two main buildings were selected in historic Cairo to represent these ideas: Mostafa Ghafaar Al Selhdar House, Wikala of Qaitbay. A representation is done through reshaping the activities and the environmental role using visual contemporary art. Different visual media were uses to show the hidden aspect of the functions in a visual and interactive way. This representation raises awareness of the courtyard's importance which allow the visitors to feel the absence of its value nowadays. The concept of the project was to provide more appealing and interactive teaching way for students to revisit and reshape the historic buildings in Cairo trying to sport the light on the importance on courtyards. This pilot project can be implemented in many cases along different regions to present the different functions beyond the courtyards and any passive techniques.

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“Diagram to visualize courtyards in mediterranean architecture, by Night Cafe”

THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

11

COURTYARDS IN ISLAMIC ARCHITECTURE: ESSENTIAL DEMANDS OF BOTH HUMAN BUILDING

DELIANA AL-SAHAWNEH

Abstract

The beating heart of Islamic architecture; courtyard's unique attractiveness stems from its social, psychological, environmental and cultural presence. This study aims to understand the importance of courtyards and the absence of such elements in modern architecture despite their presence in traditional ones. Results will be developed to discover its magical spatiality and create an architectonic destiny for courtyards facing the numerous circumstances that impede their growth.

Keywords

Courtyard, Islamic architecture, houses, local architecture, impacts.

Introduction

Islamic architecture is one of the world's most celebrated building traditions, known for its radiant colors, rich patterns, and symmetrical silhouettes. It is based on the concept of unity, balance, and harmony that are the pillars of Islamic ethics. Courtyards are a building element that originated from hot dry regions and have gained wide acceptance in various parts of the world. Jordan, as with other neighboring countries, is characterized by the utilization of the courtyard as an Islamic architectural component that is appropriate to its culture, climate, and local society. They are found in houses, mosques, and public buildings that offer pockets of meeting places that activate communal and family-oriented activities such as gardening, cooking, working, playing, sleeping, or even in some cases as places to keep animals.

Research background

The concept of a courtyard house dates back thousands of years to Mesopotamia architecture and is recognized as one of the most ancient approaches to housing. It is seen as a meditation element for Muslims when facing the sky in a closed space, as

well as a social gathering area decorated with flowerpots. Courtyard is of many functions, and its existence in Bedouin life, village life, and city life in Jordan is a pleasure beyond the photogenic image. Bedouins used the courtyard area to perform daily activities such as yogurt and bread making, cooking, and rug weaving. The villager's courtyard contains animals and birds.

Relevance of the research

The research will focus on the importance of the courtyard in Islamic architecture, its functions, mechanism, and classification. It will also discuss the environmental, psychological, socio-politic, socio-cultural, and traditional patterns of the courtyard, as well as its absence in modern architecture despite its importance in traditional ones.

Courtyards' place and function

The courtyard is an architectural device for privacy and protection, but it is also a microcosm that parallels the order of the universe. It has a unique charm and is explored through historical narratives in various epochs. The term 'courtyard' is weak and ill-defined, and it is difficult to describe a golden age of the courtyard - an inner quadrangle surrounded on all sides by a tall house and a mainstay of architecture over several centuries. Courtyards have their roots in Graeco-Roman antiquity and are both a practical design and an aesthetic institution that mutates and reflects the character of the age. Courtyards are integral to large-scale domestic architecture across all levels of society, providing peaceful protected air, intimacy, and conversation and sharing a brightly echoing acoustic. The urban formula of a building that occupies the whole block without setbacks (with an internal courtyard) is efficient, as the plot ratios are much higher than if the periphery of the block were sacrificed for equivalent benefits. In general, one can accommodate twice the number of families in the courtyard building as the setback building.

Environmental importance

Courtyards have been used for more than 5000 years due to their potential to provide a thermally comfortable area for living. They are a microclimate modifier in the house due to their ability to reduce peak temperatures, channel breezes and adjust the degree of humidity. Courtyards belong to 'transitional space', which covers a wide range of spaces from a passageway and a corridor to a balcony or porch. There are three main types of transitional spaces; 1: covers courtyards, atriums and patios, 2: involves attached semi-open spaces such as a balcony, a porch, a corridor, a covered street or an

arcade, and 3: is entirely enclosed by open space. The courtyard plays a hygienic and aesthetic role as well as increasing the percentage of 'green' spaces.

Psychological importance

Courtyards are important for healthy living, as they create a feeling of ownership and security. Oscar Newman argued that the most livable places are those that are protected by a force that is the outcome of the urban pattern. Courtyards are the best architectural design unit and urban solution to maintain these conditions.

Socio-politic importance

The 'forum' in the Byzantine city was transformed into the Islamic city, reflecting the introversion of urban life. Islamic people have adapted the courtyard model according to their local needs, exhibiting strong variation among themselves and distinct from one country to another. This demonstrates better adaptation to local domestic conditions.

Socio-cultural importance

Courtyards provide privacy from surrounding elements, providing a safe place for rest, play, worship, activities and exercise. Different courtyard shapes are suitable for kindergartens, schools, ritual spaces, hospitals and prisons. In courtyard houses, the court acts as an outdoor room and the buildings or rooms around a courtyard attenuate noises from surrounding buildings or from the street. Safety and security are increased by opening from the center part.

The reasons for the relative demise of courtyards

The reasons are both technological and conceptual. In large city towers, vertical circulation (elevator) is used and terminates it, while in medium-height buildings, there is a temptation to fill in the entire piece of land with accommodation. In suburban circumstances, there is often no space and compulsory setbacks make the internal space redundant for lighting. When architecture confronts modern circumstances, the courtyard all but perishes, but there is more than enough in the record to salvage the motif. A creative revaluation would seem in order.

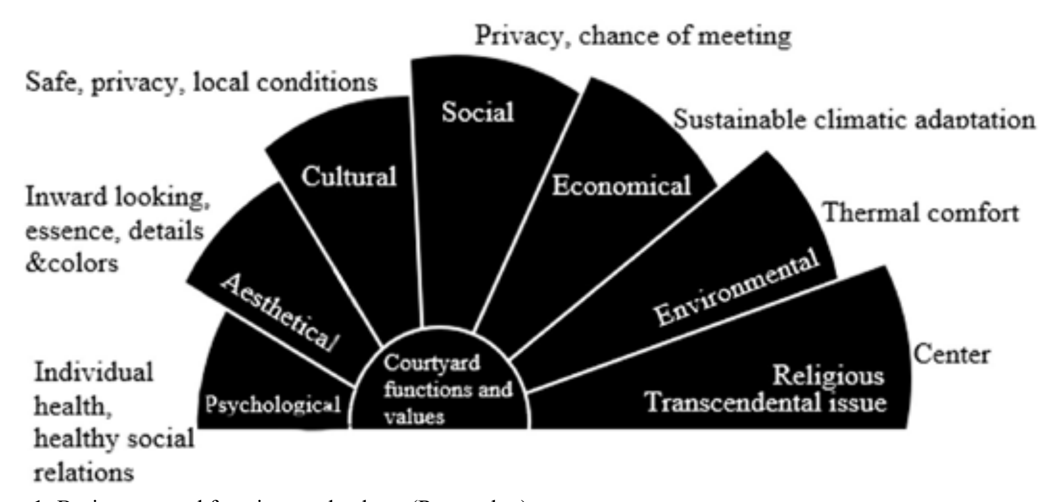
The lexical weakness of the courtyard

English has a unique pictorial expression for the concept of courtyards, combining the two terms yard and court. The yard is etymologically close to garden, while the term

court has mostly indoor notions. English uniquely combines these two images, creating a space that reconciles indoors and outdoors. However, the definition of a courtyard is often foggy and ill-separated from any fenced enclosure or garden at the back of a property. Google discovers that a courtyard can mean a garden faced by three fences at the rear of a dwelling.

Outcomes

- Misunderstanding modernity, unbelief in traditional architecture, planning and building regulations, lack of a comprehensive view of the city, real estate developers and investors dominating construction activities, and lack of a global photo stream are all obstacles to modernity.
- Architects agree that courtyards are an important part of buildings, providing privacy and inclusion, providing a source of light, breeze, sand and water, reflecting the socio-cultural status of family life, and having the ability to contribute to healing procedures. They are used to achieve the best inside thermal comfort, day or night, and were designed within the local limits of material and in the correct shape.
- The basic courtyard function and values are as follows:



1: Basic courtyard functions and values. (Researcher)

Recommendations

- In terms of its contribution to good health, the courtyard can be used as a place for facilitating the healing process due to its natural healing potential.
- The necessity of developing legislation that allows and motivates the use of the inner courtyard as a basic element in the design of residential and public buildings.

- Courtyard is the core of Islamic architectural buildings, as an organizing element, and figurate important center with many religious, environmental, social, economic and aesthetical functions, this is precisely what we recommend reactivating, using and disseminating widely.

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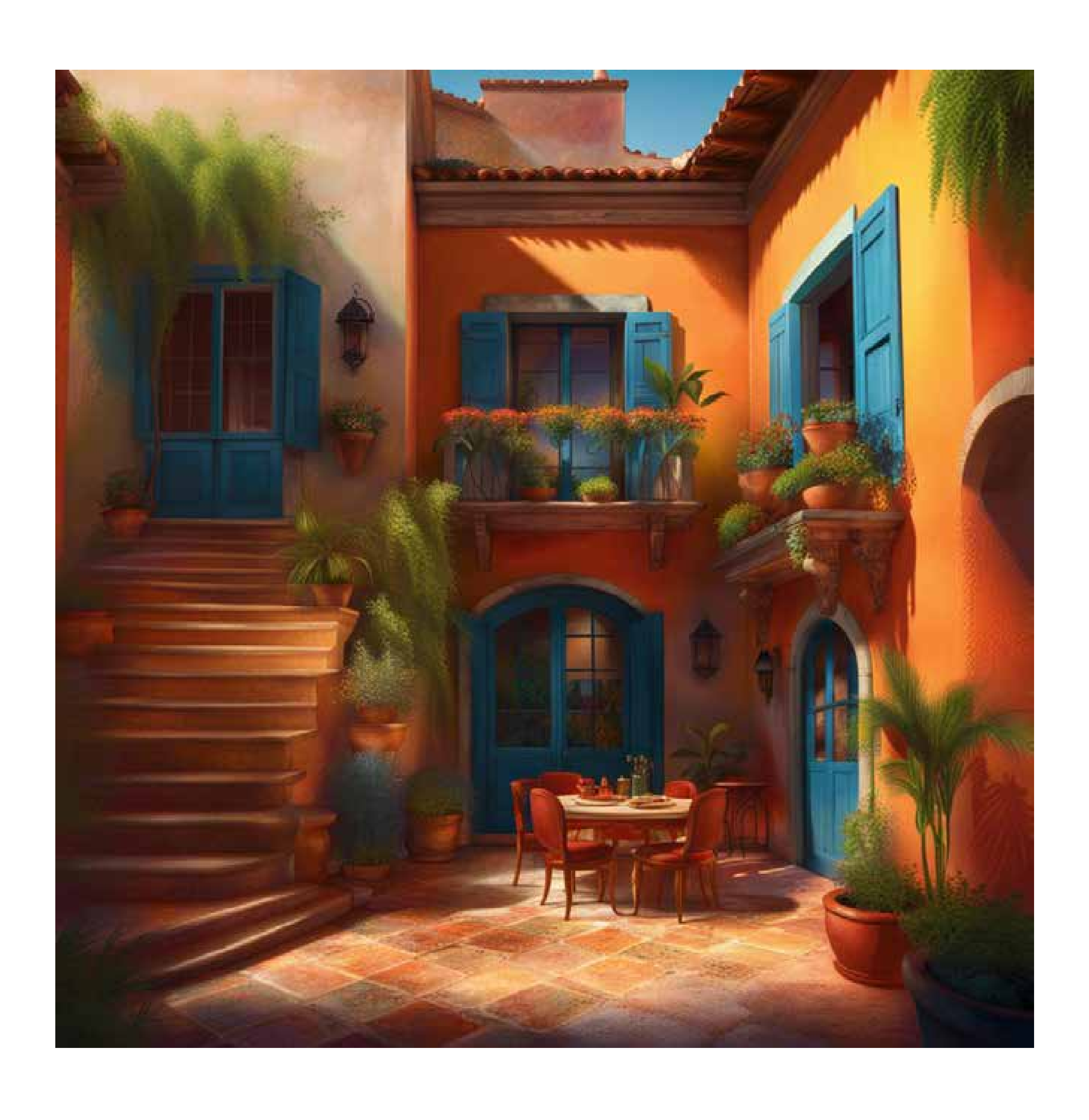
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Mediterranean courtyards, by Night Cafe

12

AN EXPLORATION ON COURTYARD HOUSES IN THE SOUTH OF JORDAN, CASESTUDY OF AL-KARAK CITY

DEYALA TARAWNEH, HANEEN SAWALQA

Abstract

The courtyard has always been a unique feature in Mediterranean architecture and Jordan is no exception. Literature discussions demonstrate numerous examples of courtyard houses across the Middle East, in Jordan in particular, many examples document them in central cities such as Amman, Salt and Irbid. However, and due to poor procedural frameworks, the research found that many distinguished courtyard cases are found in less central cities, Al-Karak city as an example, yet not properly documented or shared with the general public.

Thus, this research bids to embark on the exploration of these cases and initiate their documentation, in an attempt to bring them into the light. Moreover, this research acts as an invitation to bring together more research interest to similar overlooked cases.

Keywords

Courtyard houses, Jordan, Al-Karak. Mediterranean architecture.

Introduction

The traditional courtyard house's spatial organization and arrangement have always been shaped in ways that influence the basic sociocultural setting of the community. The traditional Mediterranean courtyard serves as the foundation of both the neighborhood's sociocultural environment and the overall physical urban fabric.

Courtyards, in addition to being historical features, have long performed as private yet social centers of Mediterranean houses. The living areas in a traditional courtyard home are arranged around a central open space, although the courtyard design has gradually been updated for contemporary living. Courtyards are an integral component of a home's lighting and ventilation system as well as it is hub of domestic activities.

Literature discussions demonstrate numerous examples of courtyard houses across the Middle East, in Jordan in particular, many examples document them in central cities such as Amman, Salt and Irbid,

However, and despite the fact that this typology exists in other contexts in Jordan, no official research was found, which provoked the question guiding this research. And upon further investigation, it was brought to the researchers' attention that the documentation and exploration of such typologies has been absent from the minds of officials due to several factors which will be further explored in this research. Thus, an overview of the traditional courtyard houses in another, less central Jordanian city, Al-Karak, is provided in this paper.

1. Literature review

2.1. On courtyard houses

From the Egyptian excavations at Kahun which date back approximately 5000 years, to the Chaldean City of Ur about 2000 B.C., the historical evolution of courtyard houses could be traced throughout history (Oliver,2003). The qualities of courtyard houses vary depending on the climate and culture of a particular area; for instance, courtyards may serve as inner gardens in some regions or as the house's focal point in others.

One of the oldest cultures in the Middle East where the oldest courtyard houses exist is Sumer and Pharaonic in Egypt. Later on, similar courtyard houses where established in western civilizations such as ancient Greece and Rome (Abdulac,1982). For example, one of the most distinct areas where courtyard houses exist according to Schoenauer and Seeman (1962), is a troglodyte village in the Matmatas region of Southern Tunisia. It is seen as the most primitive and homogeneous community to construct courtyard homes where each residential unit has a courtyard that is open to the sky and is surrounded by sloped walls.

In North Africa, the first courtyard prototype can be seen through Dours, in addition to the encampment of nomadic tribes in West Africa, the Kraals in Bechunaland in South Africa, and the first rectangular homes in Morocco (Das,2006). Figure 1 demonstrates different types of courtyard layouts (Schoenauer &Seeman, 1962).

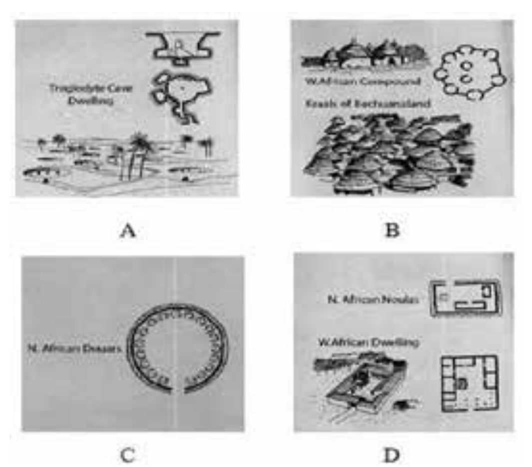


Figure 1 Different types of courtyard form in Africa (Schoenauer, 1962)

In Italy around 700 B.C., a different form of courtyard design is adopted through the atrium house, it features a courtyard that is small in area and encircled by rooms where a container is placed in the center for collecting rainwater for drinking. The fundamental objective of this open-to-the-sky design is to offer a private outdoor space. After the Romans invaded Southern Italy in 275 B.C., their architecture mixed elements from the Greeks and Etruscans (Al-Dawoud,2006).

Buildings in Bilad al-Sham and those in the area between the Tigris and Euphrates both had courtyard housing during the beginning of the third millennium before the common era. The idea of a courtyard was used by Arab nomads while they were traveling and living in the desert. They established their tents in a circular format in order to protect and shelter their livestock. As Arab-Islamic architecture evolved, the courtyard emerged as a crucial typological component. The Arabs' former nomadic desert way of life seemingly had a big impact on their permanent homes. Thus, the courtyard satisfies a long-standing desire for an open living space (Zein Alabidin, 2020).

Noticeably, prototypes of courtyard houses in Bilad al-Sham can be clearly seen in Syrian houses. One of the characteristics in basements of such courtyard houses is the moderate temperature throughout the year, such courtyards create a desirable living environment during periods of extremely cold or hot weather. During the hot, dry season, the basement functions as a thermal moderator by allowing the hot air gathered by the wind-catchers to be cooled and humidified before being discharged into the courtyard space. As is the case in many courtyard homes in Aleppo, a city that witnessed numerous wars, it is also utilized for the storing yearly food supplies (Zein Alabidin, 2020).



Figure 2 The fountain in Achik Bash House in Aleppo (Zein Alabidin, 2020)



Figure 3 Basil House in Aleppo. (Zein Alabidin, 2020)

2.2. Courtyard houses in Jordan

Literature discussions demonstrate numerous examples of courtyard houses across the Middle East, in Jordan in particular, many examples document them in central cities such as Amman, Salt and Irbid.

In the Belad Al-Sham region, where the courtyard was a crucial typological component, the merchants of ancient Damascus popularized the idea of the courtyard on their journeys. Traditional courtyard houses in Jordan, include qualities that are appropriate to the local area and influence architectural components (Amro and Bahauddin, 2015). Courtyard houses in Jordan were typically characterized as L or U shaped. An example of L-shaped courtyard house given by the researchers is the Arar house situated in Irbid governorate, Jordan. The courtyard in Arar house is enclosed from two sides by rooms and two other sides by a high wall (Figure 4).

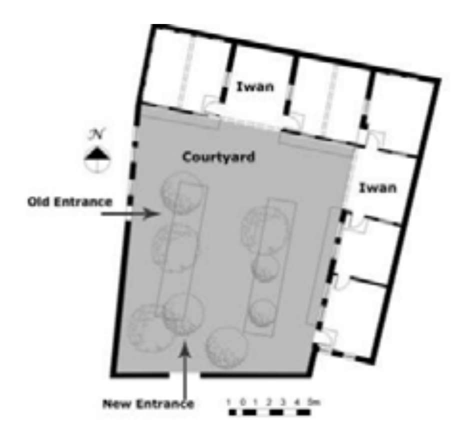


Figure 4 L- shaped courtyard in Arar House (Amro and Bahauddin, 2015).

The other example for U-shaped courtyard houses is Al-Nabulsi house, the courtyard is encircled by rooms on three sides, and a high wall on the fourth (Figure 5).

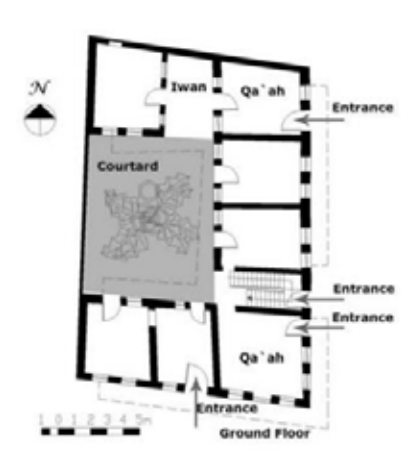


Figure 5 U- shaped courtyard in Al-Nabulsi House (Amro and Bahauddin, 2015).

The two courtyards include tall plants and trees that offer lots of shade. Where the family feels at ease and secure in the space as they become more private spaces. The courtyard is the center of the house, it serves as a space for cooking, washing, playing with children, amongst other events. Some houses may have more than one courtyard depending on the size of the house (ibid).

In a study by Qtaishat et al. (2020) entitled "*Exploring the socio-cultural sustainability of old and new housing: Two cases from Jordan*" it is mentioned that the city of Salt features introverted planforms that consist of a succession of chambers arranged around a central courtyard that is typically exposed to the sky. This type of design fulfills cultural norms and offers a flexible floor plan that can be modified to meet the changing needs of a large family. Additionally, it is climate-appropriate for better ventilation and passive cooling.

Moreover, in another research paper entitled "*The Historical Development of the Jordanian Rural House and Its Effects on Traditional and Modern Buildings*" by Al-izzawi et. al. (1995), courtyard houses in Al-Salt city took three different forms shown in figure 6; (a) building blocks on both sides forming the open space in between, (b) building blocks on four sides; this type would usually consist of one or two stories. The central open space (referred to as Iwan) and the entry space are covered with cross-barrel vaults that are pointed; they both open to the central space of the courtyard. And (c) having the central area / courtyard covered in order to protect it from the rainy winter days in Al-Salt city.

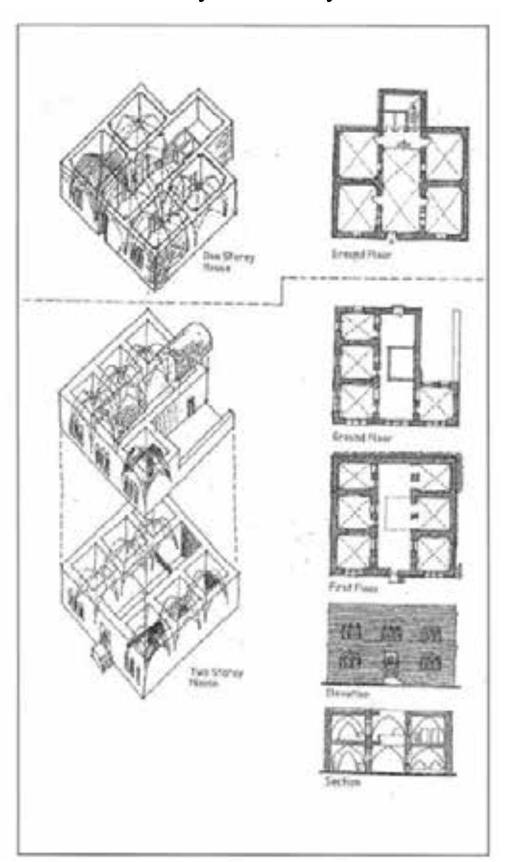


Figure 6 Houses in Al-Salt city – (after the building research centre 1990)

2. Context

Al-Karak city is situated in the southern part of Jordan, sharing borders with the Al- Tafelah Governorate to the south, Madaba Governorate to the north, the Al-Qatranah region to the northeast, the Al-Sultani Dam to the southeast, and the Southern Ghours to the west. It is located within the Mediterranean Climate, which has hot, dry summers and chilly, rainy winters. The amount of precipitation varies from year to year and from season to season. As a result, the climate in Al-Karak Governorate is diverse, which benefits the region's tourism sector since visitors can enjoy the pleasantly warm Ghour region in the winter and the plains in spring and summer. That would turn the government into a popular tourism destination.

Up until the publication of the Administrative Formations Regulation (1) for the year 1966, which divided the Kingdom of Jordan into governorates and counties, Al-Karak was a county. On January 16, 1966, Al-Karak County became a governorate.

As for population, Al-Karak’s population is approximately 316629 inhabitants, on an area of 3494.7 square kilometer and a density of (90.6) inhabitants per square kilometer. The Governorate is distinguished by its diverse geography, which includes desert, mountainous, semi-Ghour, and Ghour regions, as a result, it relies heavily on agriculture. It also houses the Prophet's Companions Tombs, which makes it a popular destination for religious travelers. Al-Karak Governorate is also classified as an industrial region due to the presence of raw minerals like potash, phosphate, bromine, cement raw materials, and gypsum (MoI, 2023)

The old town and castle of Al-Karak nevertheless manage to dominate the surrounding area, despite the defenses having sustained significant damage over the years due to natural deterioration, conflict, and sporadic earthquakes. One must ascend from deep valleys over winding switchback roads in order to reach the town. The town and castle are situated on an 850 m-long plateau, with the large castle at its southern end. Deep human-made ditches have been used to divide the castle from the town and the hill to the south. Given the numerous brief descriptions of Al-Karak Castle that can be found in chronicles, geographical works, and the travel accounts of Arab and European travelers, it is clear that Al-Karak Castle impressed Medieval observers.

Ibn Battuta, a well-known traveler from the fourteenth century, was among many who visited Al-Karak. He made a distinguished journey from North Africa all the way to China during which he visited the Holy Cities of Mekka and Medina. This journey is known as the Hajj in Arabic (English: Pilgrimage). He began this journey from Damascus, therefore the King's Highway brought him via Jordan to the south (Arabic: Darb al-Malik). He writes that the pilgrims made a stop at the village of Al-Thniyya, which is situated on a hill east of Al-Karak, to purchase supplies for the following destination of their journey. The castle was visible from this location.

Ibn Battuta writes; “*Then the travellers came to the castle of Al-Karak which is one of the most marvelous, most inaccessible and most celebrated of castles. It is called the “Castle of the Raven” (Arabic: hisn al-ghurāb). It seems to be surrounded on all sides by valleys*” (Karak Resources project, 2023)

The layout of Al-Karak's town and castle demonstrates how the fortifications were intended to work. A long defensive wall once ringed the entire plateau on which the town is located (the dotted lines on the plan mark in the sections of the wall that no longer exist). In strategic locations along the wall, towers, or Burjs in Arabic, were built to provide the defenders with a clear view of the surrounding area and the approaches to the town. These towers still stand in certain locations.

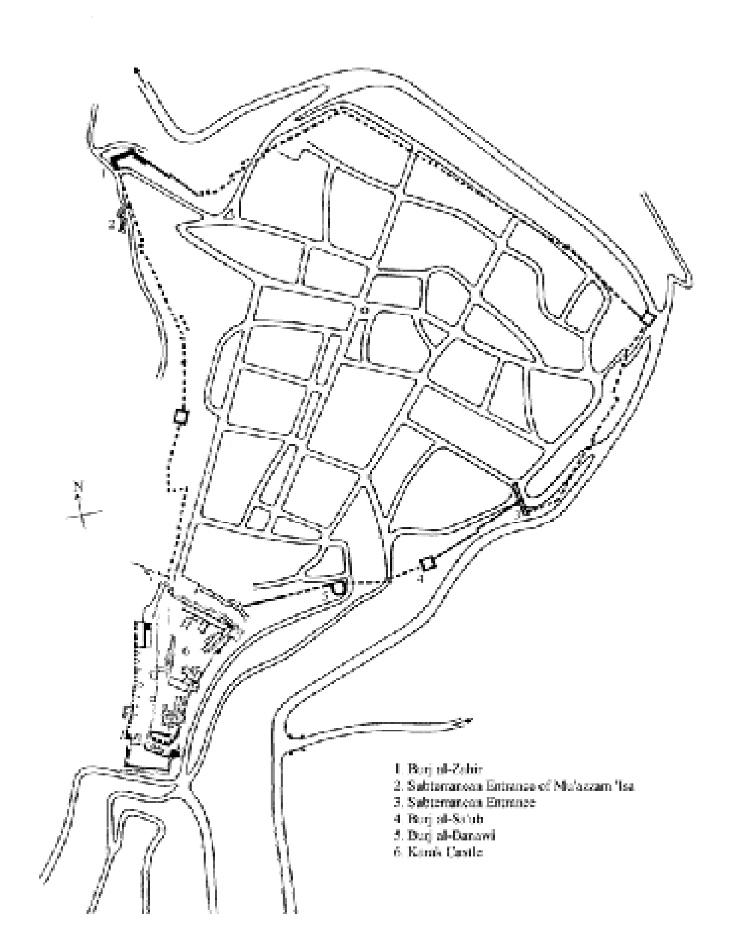


Figure 7 Layout of Al-Karak's town and castle - (Karak Resources project, 2023)

There are numerous projects that are aiming to improve Al-Karak urban fabric commenced by top architecture offices in Jordan such as Al-Karak Priority project by Bitar consultants and financed by the world bank. Another project is by Faris Bagaeen for Al-Karak Society Building project.



Figure 8 Al-Karak Priority project by Bitar consultants (bitarconsultants, 2023)

And Al-Karak Plaza project by Yaghmour architects:

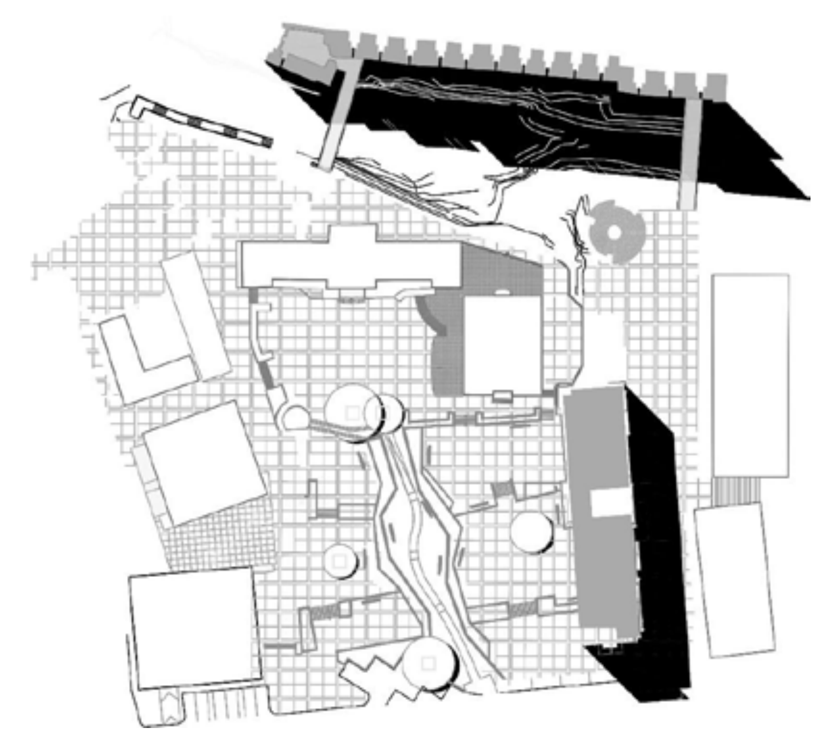


Figure 9 Al-Karak Plaza project by Yaghmour architects (yaghmourarchitects, 2023)

A newspaper article highlights that almost 50% of the houses in Al-Karak may be considered as heritage buildings, however, they are under a constant threat of demolition due to lack of documentation and lack of understanding on their value, and this is where this paper comes to highlight the need to document houses with unique architectural features such as courtyard (khaberni, 2023)

3. Methods

This research may be understood as exploratory, as it aims to explore the courtyard house phenomenon in its context. It may also be understood as a case study research, as it brings forward the case of Al-Karak, and aims to invite further researchers to the discussion around courtyard houses in less explored contexts. The research relied heavily on social research tools including interviews, observation, and field surveys as will be demonstrated throughout the manuscript.

The interviewed subjects for the research included officials from the Greater Al-Karak Municipality, home owners for courtyard houses, as well as participants from the local community. The interviews followed a semi-structured format and an interview guideline was designed for the purpose of this research to further understand the context of these cases, and in order to establish for a cross-sectorial mapping and documentation for similar cases in the future.

A preliminary photographic documentation was also performed to establish a database for the courtyard typology in Al-Karak Governorate, which the research aims to provide as starting point to provoke the discussion on houses with this distinguished architectural feature amongst the different related stakeholders.

4. Discussion and findings

5.1. Cases:

As a result of the collective research methods, and after considering several houses, this research will bring forward only four cases on the premises of attracting more research attention to the numerous remaining examples available in Al-Karak. These examples include; (1) the Shweilat and Habashneh residence, later transformed into Muab Primary Civil School, and currently abandoned. (2) the Irfefan al Majali Residence, also currently abandoned. (3) the Dleiwan al Majali Residence, currently functioning as a Guest House. (4) the old Men Prison Facility, currently functioning as a folk life Museum.

The selection criteria for the cases was established on the bases of recommendation, availability, and accessibility rather than importance or architectural value. A more structured methodology is recommended for similar future research.

- Case one: The Shweilat and Habashneh residence, later transformed into Muab Primary Civil School, and currently abandoned.



Figure 10 Shweilat and Habasshneh Residence open courtyard



Figure 11 Shweilat and Habashned Residence courtyard deterioration

- Case two: The Irfefan al Majali Residence, also currently abandoned.

Figure 12 Irfifan al Majali Residence courtyard

- Case three: The Deiwan al Majali Residence, currently functioning as a Guest House.





Figure 13 Dleiwan al Majali Residence courtyard

- Case four: The old Men Prison Facility, currently functioning as a folk life Museum.









Figure 14 Old Prison Facility courtyard

As shown in the images, the majority of the building thus far maintain their structural integrity, they still have the original structural elements including the roofing systems, and columns, and some even still have the original tiling which was brought from Bilad al Sham in the late 1800's and early 1900's. However, and as the images demonstrate, abandonment and poor maintenance of these buildings have left them derelict and in severe need of attention.

It is important here to note that several other examples of courtyard houses exist in Al-Karak Governorate, however, due to poor procedural systems, little to none technical drawings are available for the purpose of documentation or research. Other examples are available upon request, and city officials are very much supportive of the idea of mapping them. However, due to little resources and lack of awareness for the value of such projects, they remain un-prioritized.

5.2. Fieldwork

From both the owners and locals point of view, more attention needs to be given to Al-Karak in general, and in terms of its social, cultural, political and economic landscape in particular. As it has been demonstrated in the context section, Al-Karak enjoys and long and rich history that may be easily obscured should it not be documented properly and made accessible to interested stakeholders. However, the city has been suffering for years on end from poor planning, lack of development opportunities, and declining economy which based on observation, and supported by participants' testimonies, is evident in the mostly abandoned shops in strategic locations such as the city center, high unemployment rates and lack of job opportunities, and the resulting internal migrations especially from the youth end. The governorate has also endured the toll of the Syrian crisis similar to many Jordanian cities, and the local can almost confirm Al-Karak has not recovered from the Covid-19 pandemic.

Mapping the architectural and heritage buildings may aid in further understanding the dimensions highlighted above, which in return will have an added value especially from an economic perspective in an already decaying context as it may increase the touristic value of the governorate, generate jobs, and improve services for both tourists and the locals alike.

5. Conclusion

One of the main research alarming findings was that no architectural record can be found for many of the buildings in Al-Karak and that is mainly due to the fact that for a long period of time, according to the interviews, building permits were issued without the need for the provision of any architectural drawings such as plans, sections, or elevation.

Due to poor regulatory frameworks especially when it comes to licensing, a whole legacy of architectural manifestation is no longer traceable. However, with political well, and with utilizing new tools such as

digital mapping and AI, data sets may be established and more professional mapping of courtyard houses may be available for future researchers.

With the help of recent technologies such as laser tools and computer aided design, the research recommends that it is crucial to embark on documenting existing buildings with high architectural value prior to any further deterioration. However, in order to properly do so, more structureed tools for the prioritization of mapping, selection criteria, in addition to documentation criteria in ways that capture the complexity of such buildings from an inter-disciplinary perspective need to be further established

Lastly, by shedding light on some examples of uniquely architectured examples in a context that is often overlooked by academic research, this paper bids to invite more researchers to embark on a collective effort to document the architectural scene in Al-Karak, which the research highly argues deserves more attention.

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13

COURTYARD INTIMACY IN ISLAMIC ARCHITECTURE

DIALA ATIYAT

Abstract

Inhabitant has always interacted with the place in which he lives and has tried as much as possible to change the formation of space to suit their personality. This reflection can be found in the interior design of a lot of building especially his house which will allow him to practice various activities. In Islamic architecture, the open space in the middle of the house has an influence that is distinguished from the rest of the rooms around it. Courtyard. is the space to which Human relates more, as it has a spiritual and emotional dimension that allows inhabitant communicates with the universe, and this is what the research will explain.

Keywords

Courtyard, Islamic Architecture, Inhabitant Feelings.

Introduction

Courtyard in Islamic architecture was associated with direct contact with the sky to form the space that enriches the relationship of the universe with its inhabitant. All of this created a uniquely intimate bond emphasizing the spiritual functionality provided by the courtyard, strengthening the inhabitant's belonging to the earth. Courtyard house has a positive impact on Human physical and psychological well-being. (*Al-Zamil, 2018)* It also offers privacy by stopping neighbors and other people from looking into it. Windows are designed to face the courtyard instead of the outside. (*McIntosh et al, 2022)*

Courtyard plays a vital role in influencing the user's feelings. Its physical design allowed giving an effect of containment and privacy. The windows on the interior walls allowed the mother to observe her children and check on them while playing *Figure (2),* in addition to the user's sense of belonging, identity, and connection to his roots. (*Soliman and Elkhateeb, 2022)*

Courtyard Intimacy

The reality of Man is latent in his soul and can be translated through architecture to reach a dynamism that suits his time and place and carries high symbolic values. The physical representation of the courtyard and the earth's relationship with the sky works to achieve identity. As for the symbolism, it was manifested in the use of decorations, Islamic Arabic calligraphy techniques, and the study of light and shadows. (Qasimi and Darwish, 2021)
The courtyard, in its abstract and straightforward concept, worked to enhance the inhabitant's belonging to nature, as this geometric space that provides comfort expresses the personality of the inhabitant, as it is the place that tries to add to it the various elements that suit his emotions and the psychological state that he wants to feel. (*Al youssef , 2014) Figure(1)*



Figure (1), Courtyard's direct connection with the sky, generated via AI Journey. Discord application. (The researcher, 2023)

Courtyard elements that give its unique character can be distinguished into:

- Motifs

Motifs are a means of architectural expression and are purely symbolic. It is an expressive and interpretive state of the universe and existence that came with the principle of prohibiting analogy and imagery in Islam. Islamic motifs depend on the essence of creativity, which transcends formal simulation based on accuracy and exceeds it to reach reliance on the search for the nature of things and the connection between more than one element to form an integrated work. It gives a feeling of tasting the beauty of art.

- Plants

The plants in the courtyard vary between climbing and flowering types, and perennial trees may be present to impart beautiful colors and fragrant scents and they could be used as a food source and medical treatment.

- Fountain

The fountain usually mediates the house courtyard. It is a source for watering the surrounding plants and gives a feeling of coolness on hot summer days. It is also a source of relaxation and connection with nature due to its water flow sound.

- The sky

It is considered the ceiling of the house courtyard in Islamic architecture in several meanings, including expressive, sensual, or aesthetic. The light coming from the sky is associated with the supreme creator, in which the inhabitant is connected with the change of time, so he sees the fluctuations of the sky, whether clear or cloudy, sunny or rainy, day and night.

- Architectural elements

The arches, Iwans, Mashrabiyas, and Chadrons, which gave the courtyard its privacy, inevitably result from the typical social-religious climate. All these architectural additions came as functional, environmental, and aesthetic needs. (*Hamed, 2016)*



Figure 2, Courtyard yard provides safety and it is a playing place for children, generated via AI Journey. Discord application. (The researcher, 2023)

Conclusion

The voidness of the courtyard is considered full and empty at the same time, as it is the goal of the civil man, which compensates him for the nature that he was deprived of inside the city. The center gives a sense of stability and balance through imagination, balances the help of material elements that enrich this experience, and activates that imagination. The courtyard can help the inhabitant feel love and belonging by being a familiar, specific, and comfortable environment that helps feel joyful and communicate with nature.

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The detailed matte painting depicted a housing with bricks and plaster. In the courtyard, there was sitting furniture and landscape planters. The overall feel was nostalgic and maximalist, by Night Cafe

THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

14

THE USE OF COURTYARDS IN CONTEMPORARY RESIDENTIAL BUILDINGS

DONIA OBAIDAT

Abstract

The influence of pandemics on architecture throughout history is clearly demonstrated. While in some occurrences this impact was in terms of new architectural and urban developments, covid-19 pandemic has drawn our attention primarily to the residences, where recent studies indicated some deficiencies in residential indoor spaces through the pandemic, such as the lack of proper open space, mainly in residential apartment buildings. This paper focuses on the potential role of the courtyard in enhancing the residential living environment of apartment buildings post covid-19 and how the notion of the courtyard can be used in contemporary architecture.

Keywords

Pandemics, Courtyard, Open spaces, Residential apartment buildings, Indoor spaces.

Introduction

In pursuance of creating spaces that provide safety, comfort and wellness, architecture has been impacted by human needs and behaviour. Therefore, pandemics have been a huge factor that reshaped architecture throughout history as a procedure to face the posed challenges and to correspond with the emerging demands of inhabitants. As the previous pandemic indicated a number of new needs and deficiencies in some residential apartments, such as the crucial need for a high-quality outdoor space that's well integrated with the indoor spaces both visually and physically. In regard to these current demands, there comes the importance of courtyards at this point in time. Based on the fact that courtyard's history goes back thousands of years ago as a significant element worldwide in architecture and urbanism, where it succeeded in providing a proper, private and safe open space, primarily for residential buildings.

Pandemics Impact on residential Buildings

Throughout history, pandemics had a significant influence on architecture and urban planning, according to Megahed and Ghoneim (2020), infectious disease has transformed our places, whereas people had responded to such pandemics by redesigning their physical spaces, many architectural and urbanism trends were previously developed to ensure residents' health, hygiene and comfort.

The fundamental urban improvements of the Renaissance in the 14th century were motivated by the bubonic plague whereas cities cleared overcrowded living quarters, expanded their margins, developed early quarantine facilities, and opened large public spaces. As well as the 20th-century urban renewal that was driven by infectious diseases that encouraged urban planning, slum clearance, tenement reform, and waste management. During the industrial era, pandemics contributed to creating a sanitary innovation by developing water and sewage systems which required the streets to be straighter, smoother, and wider to install underground pipe systems. The third plague pandemic in 1855 changed the design of everything from drainpipes to door thresholds and building foundations. Furthermore, modern architectural designs that included large windows, balconies, flat surfaces and white paint, emphasizing the appearance of cleanliness were inspired by an era of purity of form, strict geometries, modern materials, and a rejection of ornamentation. Beyond their esthetic appeal, these features embodied modernist preoccupations with the healing effects of light, air, and nature. (Megahed and Ghoneim, 2020).

Another historical adaptation to pandemics was when Greek, Asian, Roman and Middle Eastern homes used central courtyards for safe access to daylight and open environment, where residents could safely experience sunshine and fresh air. However, this idea was widely adapted through residential designs for having an enclosed outdoor space that allowed residents to experience the outdoors without the chance of actually being outside where contagion could exist. (https://archive.curbed.com)

As demonstrated by Najem (2021), It is essential to develop the idea of the pandemic residential architecture as a literature review to be aware of the ideas that were taken into consideration in the past and how they can be of use nowadays.

The impact of Covid-19 pandemic

As a result of the COVID-19 pandemic that affected the whole world three years ago, people all over the world had to stay at home, where residences became the spaces to occupy multiple new activities and practices. (Obaidat, 2022)

The need for new requirements, strategies, and solutions to attain quality internal spaces that meet human needs and comfort, for now, and into the future, as indicated by architects and residents who witnessed the incapability of their own spaces of adapting to the new conditions. (Obaidat, 2022) Al Betawi et al. (2020) demonstrated that this transformation of human behaviour and needs requires a corresponding alteration in the living spaces.

The Use of Courtyards in Residential Buildings

As stated by Taleghani, et al. (2012), according to both Oxford's and Cambridge Dictionary, courtyards are defined as an unroofed area that is partly or completely surrounded by walls or buildings. The simple idea of including an open space (like a courtyard) in a building comes to mind when we need natural lighting, heating, cooling and ventilating in a solid building. (Zamani, et al., 2012)

It is one of the oldest forms of domestic development, whereas the idea of a courtyard as a plan configuration goes back to neolithic settlements and appears in distinctive forms globally from Latin America and Europe to China. Traditionally, it's associated with the Middle East, where climate and culture have given shape to a particular type of courtyard housing. In the beginning, the logic behind this type of plan was mainly to provide a protective area from outside forces such as invasion by humans and wild animals. (Edwards, 2006) The characteristics of courtyard housing depend on the environment and culture of a group of specific regions. (Abass, et al., 2016)

Despite the significant role of the courtyard for a long time ago, and the positive attitude it had towards residences, except that several aspects led to the absence of using this element nowadays. According to Abu ghanimeh, et al. (2011), many social and economic factors limited and reduced the use of courtyards including the evolution and expansion of the modern architectural style of multi-storey residential apartment buildings. Whereas residential apartments became the most dominant and prevailing dwelling type. (Al-Betawi, et al., 2020) As stated by Al-Homoud, et al. (2009), this type of housing expanded during the 1980s and quickly by the 1990s became the prominent housing type.

Example of a Contemporary Courtyard

According to a study by ALKhateeb and Peterson (2021), many designers have lately speculated what transformations COVID-19 might bring to residential design, and one of these speculated changes regards the personal outdoor area, which refers back to historic interior courtyards.

Courtyards have been used successfully to provide residents with a safe and private open space and a source of fresh air and sunlight for buildings. Besides houses, architects like Bilal Hammad have used courtyards in Amman for residential complexes, such as in Al Rabat Suburb (figure 1,2). This place would make a good example and a proposed solution for apartment buildings to have a proper open space that is not only functional but also aesthetically pleasing.



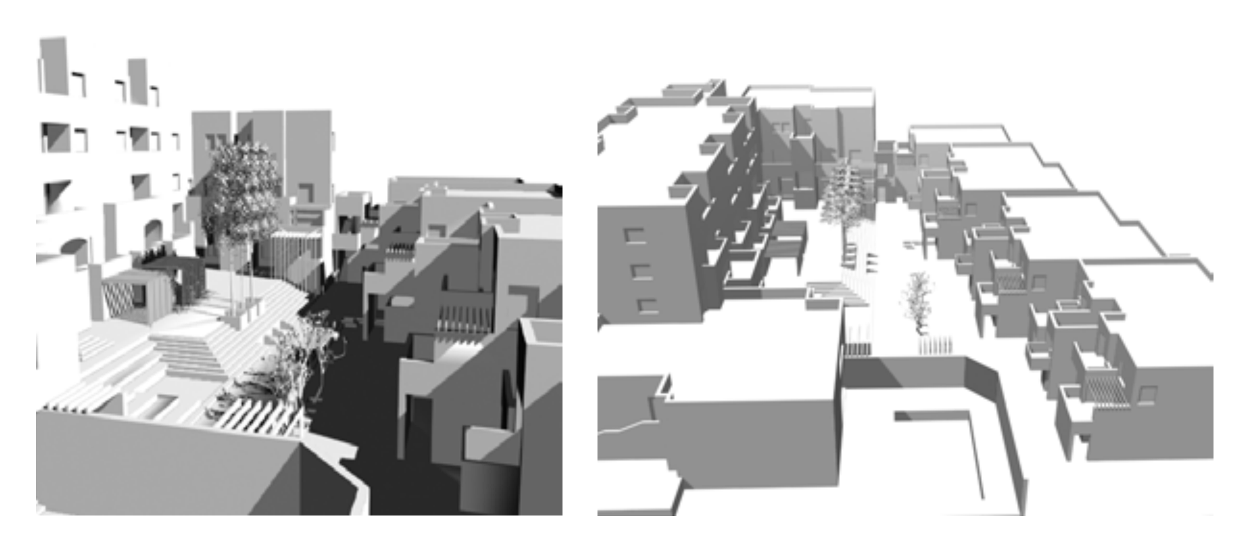
1: AL-Rabat Suburb. (https://www.slideshare.net/coolgirl0000/lecture-14-251007343)



2: AL-Rabat Suburb. (Researcher)

Al Rabat Suburb was Bilal Hammad's first residential complex project, a group of 30 residential unit with an area of 4800 sq. that includes adjoining villas and apartments that goes around an unroofed area that forms a courtyard in the middle. The main aim was to provide an inner space of movement through the internal court for the private usage of families (figure 3).

This case of using a courtyard in a contemporary residential complex has given an experience of how residential apartment buildings can be built in a more efficient way and also gives an opportunity to explore the concept of living spaces by creating an urban environment and a sense of community and togetherness.



3: Al Rabat Suburb (https://www.slideshare.net/coolgirl0000/lecture-14-251007343)

Conclusions

To sum up everything that had been noted so far, architecture is a way of life that has changed over the years, depending on several aspects and conflicts for the purpose of creating a better living environment. One of these major factors that influenced architecture is pandemics.

Although it's usual for pandemics to lead to new inventions and improvements, the COVID-19 pandemic had somehow drawn our attention back to old procedures and architectural elements, such as courtyards, and demonstrated the significance of a well-designed residence that meets the needs of residents.
A Courtyard could be as beneficial at this point in time as it had been throughout history by virtue of the lack of proper open space in contemporary residences and primarily apartment buildings. The concept of a courtyard can be used in modern apartment buildings and residential complexes to provide an open space that is adequate, safe and private, which will consequently enhance the residential living environment. This adaptation is not just about the physical space, it's about how people feel about their surroundings and relate to them.

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15

QASER AL-ADL, A MEDITERRANEAN INSPIRED BUILDING

FARAH AL-DABBAS

Abstract

The courtyard is one of the pillars of Mediterranean architecture, and its allure comes from its social, psychological, natural, and cultural presence. This study aims to understand the importance of courtyards and the reasons why they are present in older designs but absent from modern ones. Insights will be developed to comprehend its magical spatiality and to build an architectural narrative for courtyards that addresses the different development-related challenges.

Keywords

Courtyard, Mediterranean-architecture, Challenges, Architectural-narrative.

Introduction

An amaglamtion of different styles, is the Mediterranean Architecture. Blending different elements from the Spanish Renaissance, the Spanish Colonial with that of the Italian Renaissance defines Mediterranean architecture. Mediterranean Revival Architecture also incorporates Venetian styles and Gothic and Arabic styles.

Project background

The project is located in the southern of Jordan – in the city of Aqaba, with a total of 9935 meters squared built up area. This project will be taken as an example to illustrate the importance of courtyards throughout history of the Mediterranean architecture.

The project (The Palace of Justice) includes several architectural functions including the following:

- Courts
- Offices
- Interactive Courtyard
- Building services



Conceptual background:

The design methodology of the project focuses on integrating the Mediterranean Architectural elements into the facades of the building. For instance, we have used different Features of Mediterranean Architecture including:

- Arches:

Horseshoe (or keyhole), pointed and ogee (multicurved) arches are common in Mediterranean architecture.

- Ornamental Details
- Decoration often includes repeated patterns such as the arabesque.

Mashrabiya, or wood lattice work, that is used on windows for privacy and climate control. It's also sometimes used in a modern context as a purely decorative element or option for dividing interior spaces.

In general, one can accommodate twice the number of families in the courtyard building as the setback building.

Qaser Al-Adl, a Mediterranean inspired building 3



Conclusion:

- Because they provide quiet and inclusion as well as a source of light, breeze, sand, and water, courtyards are generally recognised by architects as being an essential aspect of buildings. They can promote healing and also serve to represent the sociocultural situation of family life. They were built with the proper shape and within the limitations of the available local materials to offer the best inside thermal comfort, day or night.

Recommendations:

- The courtyard can be utilized as a location for supporting the healing process due to its natural healing capacity in terms of its contribution to well health.
- We strongly advocate reactivating, utilizing, and disseminating the courtyard because it is the focal point of Mediterranean architectural structures and serves as an organizing element and metaphorically significant center with numerous religious, environmental, social, economic, and aesthetical functions.

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16

THE ENCLOSURE AS A FORM OF HUMAN SETTLEMENT BETWEEN SICILY AND THE MEDITERRANEAN

Francesca Fatta

Abstract

The Sicilian latifundia is a place of balance between land and sea landscapes, architecture and the work of man, marked by an indelible rural imprint. The "baglio" is the place where the residence-work structure of the Sicilian agricultural estate takes shape. Its structure evokes the Roman courtyard house, but also the closed house of the Maghreb culture, of origins the one does not exclude the other and indeed both origins sanction the belonging to a single common Mediterranean typology.

Keywords

Sicilian Baglio, Archetype, Residence-Work, Sicilian Latifundia, Rural Architecture.

Introduction

The theoretical contributions of Fernand Braudel (1949), Predrag Matvejevic (1987) and David Abulafia (2003) certainly played a part in the numerous researches on 'Mediterranean' living; in all these studies the Mediterranean is read and interpreted on two levels, one historical-critical and one symbolic-mythological. Difficult planes to separate, given that myth and visionary narratives unite real and imaginary in a single plot. The suggestive, and often quoted, definition by Fernand Braudel: «the Mediterranean is a thousand things together, not one landscape, but innumerable landscapes, not one sea, but a succession of seas, not one civilization but successive civilizations stacked one on top of other» (Braudel, 1985, p.7), still today, over seventy years after its first publication, leads us to reflect on the nature of this space, taking up what Walter Benjamin said: «history is the object of a construction whose place is not homogeneous and empty time, but time full of actuality» (Benjamin 1997, p.45).
In Sicily there is an architectural archetype that embodies an entire territory and, even more, a common thought that belongs to the whole Mediterranean. It is the fence that defines the original act of settling in a place, of building a shelter. This archetype belongs to various civilizations, from Egyptian to Greek, Roman and Islamic,

defining the spatiality of the courtyard house, the sacred place, the *hortus conclusus*, and continues to be used by different societies and cultures throughout history. The fence represents not only an element of spatial circumscription, but also an ordering principle that defines the inter-scalar relationships between territory, landscape, city and architecture, a device that configures open spaces for community uses regulated by specific social spheres.

The declinations of this archetype can be read in the Sicilian feud, a place of balance between landscapes of land and sea, architecture and the work of man; complex and stratified places that still retain a charm due to their original reserved nature, free from overt opulence.

The closed place of the fence, in Sicily is called "baglio", an open space where the residence-work structure of the Sicilian agricultural fund takes shape. Its structure evokes the Roman courtyard house, but also the enclosed house of Maghrebi culture and origins, one does not exclude the other, indeed both origins sanction belonging to a single common Mediterranean typology.

We have chosen to deal with the beam because this represents the projection, at different scales, of the walled city, as it aims at self-sufficiency, but since it transforms over time, it is never a pre-established idea, but an aggregate system that binds life at work. Its architecture, rather than a unitary design, lives, grows and expands over time according to an organic trace: from the original point generally consisting of a defensive tower, to the distinct and distinguishable volumes due to subsequent additions, leaving a courtyard in the center, a semantic element and functional that certifies the centrality of the system. (fig. 1)



1: Baglio in Levanzo, Egadi islands in the province of Trapani.

Baglio: etymologies and matrices of an archetype

The etymology of the word baglio appears uncertain and can be traced back to various hypotheses and origins. Some historians would trace the word back to ancient Greece (βάλλω) with the meaning of "throwing stones and javelins", "striking with arrows". The term would have become "ballista" in the Latin world, with the meaning of "crossbow". In Roman times, then, in France we find the term "baille", that is "closed but open place, with defensive peculiarities". However, it seems that in all these etymologies the common sense of defense prevails. This term defines a building or a fortified farm with a large courtyard, and in more recent times, then, only the internal courtyard of the farms.
The birth of the baglio coincides with the period of colonization of vast areas of Sicily, then abandoned and uncultivated, by the local nobles, between 1500 and 1700. The large fortified farm, closed for centuries like the castle from which it descends, was born probably in Sicily with the plot of the large estate by reworking the methods of settlement in the territory that, first the Arabs, then the Normans, had configured. The vast typology of these organisms, identifiable according to bands intersected by places, by uses and productions, by altitude or proximity to the coastal strip, always becomes autonomous due to a specific connotation consisting in the 'closure', in the 'enclosure'; or in the two antithetical conditions: an interior opposed to an exterior, even if almost all the systems belong to the broad and universal typology of the courtyard residence, or with several courtyards, which is the most general matrix of the residence in the Mediterranean basin. (fig. 2)

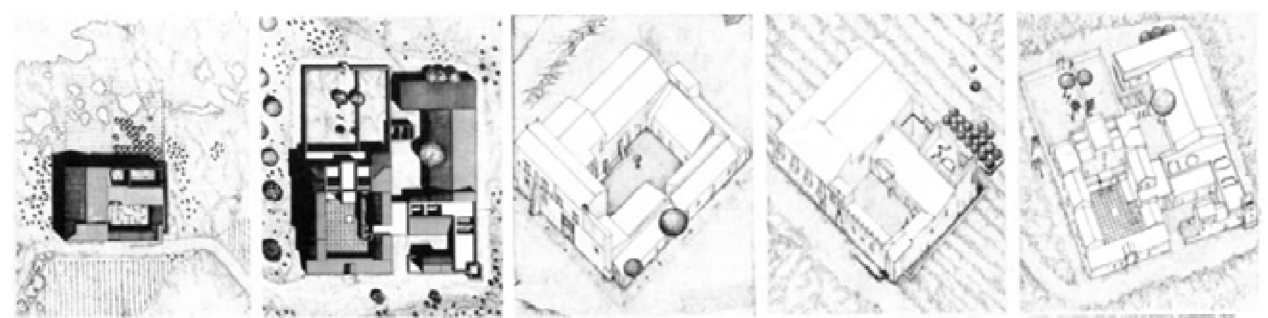


2: Excerpt from the Aliminusa farm (provice of Palermo). State Archives of Palermo, collection Direzione Centrale di Statistica (c.1830)

From *Turris* to the courtyard

The Turris is the generating element of the baglio, the geometric matrix of the enclosed enclosure that determines the new agricultural settlements, it represents the

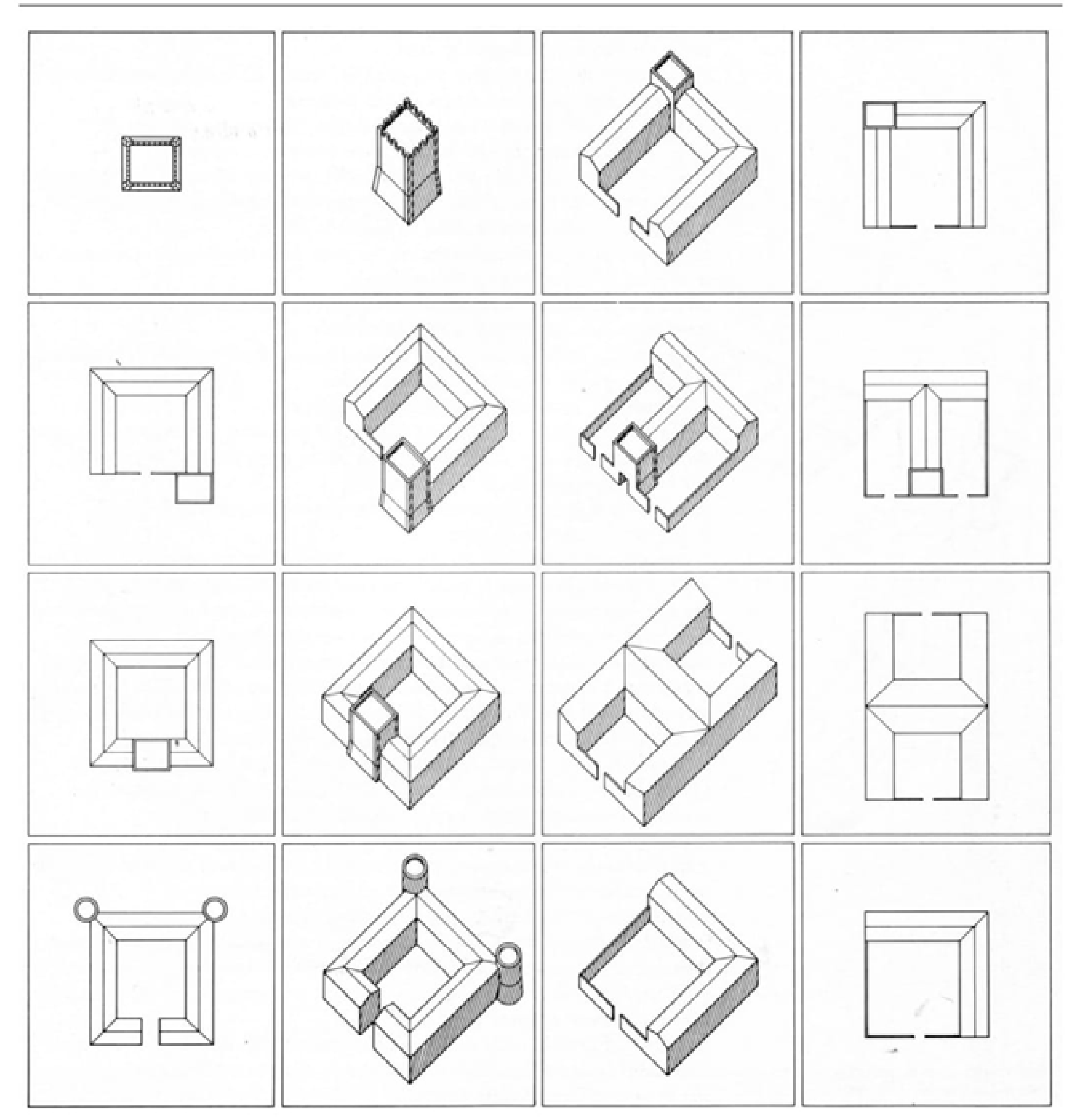
fullness that determines the void of the courtyard. It constitutes the primitive rural settlement system originally used on the lower floor as a kitchen and warehouse, and on the upper floor as an alcove. The tower was erected on a hill and placed in defense of the feud, it represented the place of possession of the lord, also guardian of the foodstuffs to defend himself from looting during raids. The tower embodies all the functions of rural architecture as a home, storage and shelter for animals, the external palisades, the moat, having exhausted the defensive character of the structure, will become the enclosure within which the typology of the beam is configured. The enclosure of the settlement was in fact created by replacing the wooden palisade around the tower with a stone wall and equipping it with external environments built along the perimeter of the enclosure. All the functions, including religious ones, take place within this.



3: Farms in Val di Noto: Poggiodiana, Ursitto e Pisciotto

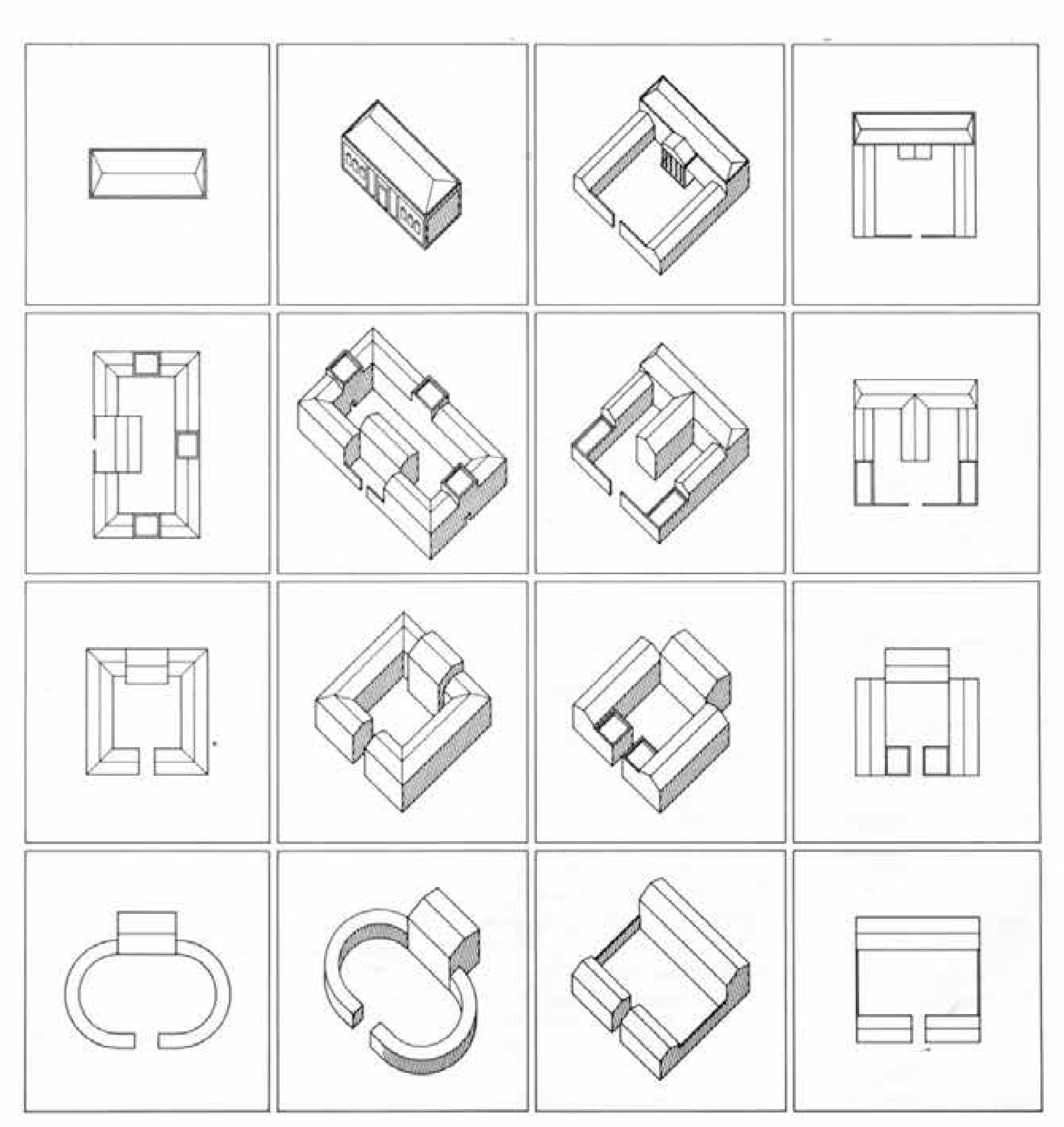
The courtyard and the room: the empty and the full

The courtyard and the room, the empty and the full, thus mark the archetypes of two different approaches to living; where the first – the void – arranges the rooms around an open space both for the community and for domestic life, and the other – the full – groups them around a central room which determines the successive stages of growth. The generators of Mediterranean living reside in these two elementary signs.
The Mediterranean residence therefore combines Greek, Roman and Islamic schemes over time with rooms distributed around an always open courtyard and with representative rooms on the side facing the entrance, preceded by a portico which, when it surrounds the courtyard, takes on the connotation of Roman peristyle.
The richer the house, the more regular the plan, while it moves away from the scheme when there are poorer houses that fit together in a disorderly way. (fig. 3)
The house was built over time in adherence to the first nucleus which later became the stable, then the rooms for the processing of the products were created and, above the stable, the bedrooms were built. Then there are covered areas and tool sheds, animal enclosures and more. Around, a short distance away, among the fields, new single-celled organisms are built with wooden roofs, to shelter tools or for sheltering animals: and the cycle begins again. (fig. 4)



4: From the Tower to the Baglio. Typological diagrams (drawing by G. Marcenò)

In these architectures the dominant matrix is the 'purpose of living' and the solutions respond to precise needs beyond the local typologies, because all these distant and at first sight different farmhouses become the consolidated place that defines the process of formalization of the architectural typology . The over one hundred specimens analyzed in the Sicilian estate testify to a natural condition to which they belong and for which they are intended to serve.
In these cases the house appears as an 'instrument' and therefore takes on a very precise connotation of functions that can be modified according to a wide range of typological solutions. (fig. 5)

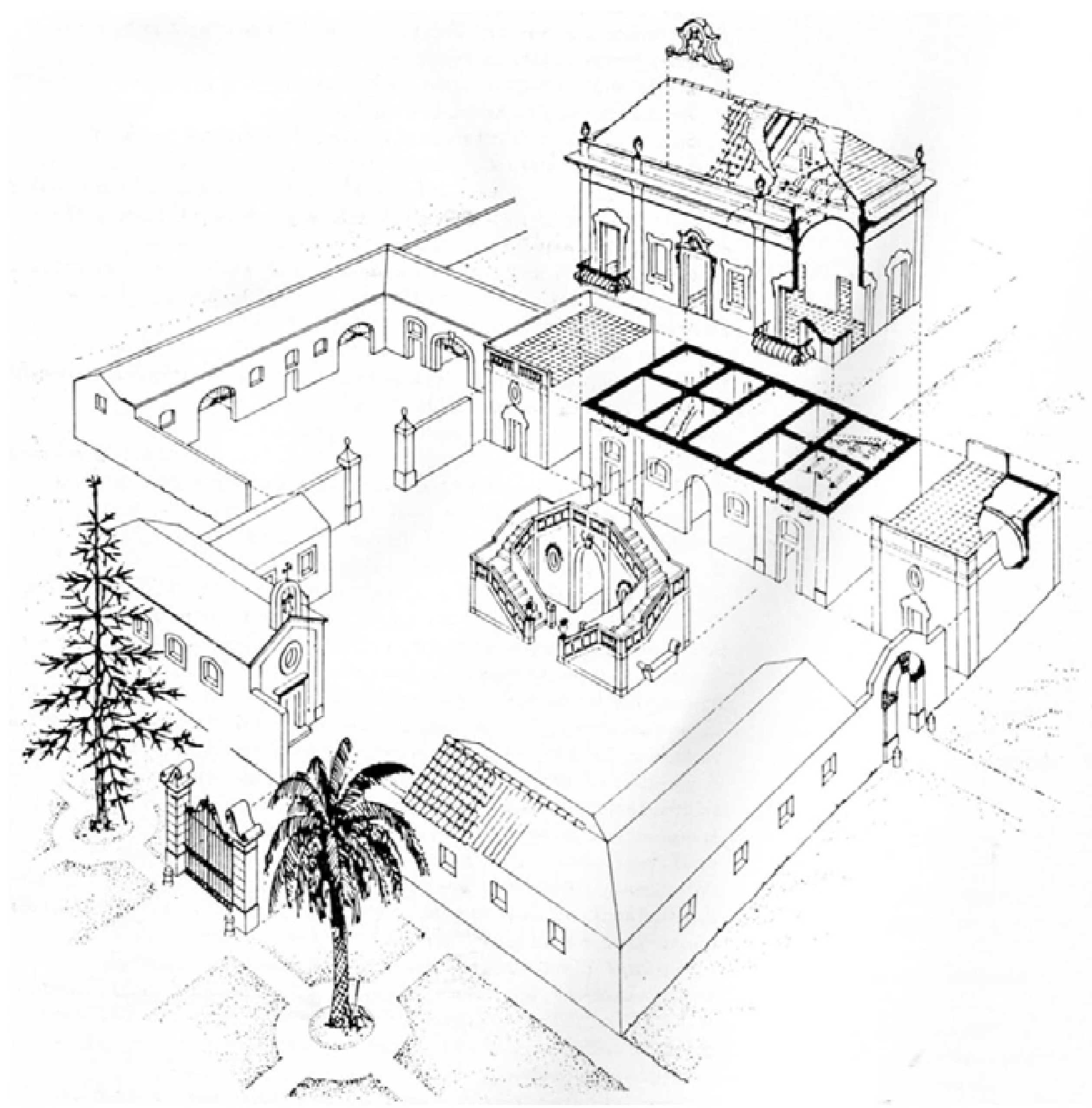


5: The Villa as the genetic core of the residence – work. Typological diagrams (drawing by G. Marcenò, 1989)

The courtyard and the villa: the ritual of relationships

The evolution of rural architecture, both the purely functional one of the farm and the more courtly one of the villa, is not only linked to the characteristics of the exploitation of the countryside resources, but also an expression of the evolution of social relations in the territory. In fact, until the mid-17th century, the Sicilian countryside was subject to the incursions of Barbary piracy, which is why fortified bagli and towers were initially built to defend agricultural activities and the communities that worked and lived there. The transformation of closed productive

structures into others of a different type, such as villas, depended on greater political stability which guaranteed the security of the community. From this acquired security of the countryside, holiday fashion exploded as a social phenomenon starting from the second decade of the eighteenth century; to satisfy the tastes and representativeness needs of the nobility, the architects defined a recurring typological and architectural model declined in countless variations. Elements which in their assembly find common systems of unification starting from the articulations or disarticulatements around the open space that always re-proposes the *domus italica.* Elements which, in comparison with the places, have determined the structure of the landscape. (fig. 6)



6: Hypothesis of transformation of a persistent nucleus already structured as a rustic baglio into a complex intended as a summer residence and agricultural land management. From De Simone, M. 1974 (drawing by Cardamone G.)

The villas, exclusively seasonal residences, also became centers around which considerable agricultural concentrations had developed. These had arisen in a climate of substantial feudal reforms (*ius cultivandi-ius aedificandi*) and social events following which a profound transformation of the territory had taken place.
The farm transformed into a villa, inside it included in addition to the manor house, large closed and open courtyards, greenhouses, pavilions and low service buildings that branch off symmetrically from the central nucleus to surround the baronial seat, characterized by specific uses and destinations of the different activities that took place, both relating to the lord's residence and to the work that his stay in the villa entailed.
A strong architectural element concentrates the interest on the main front of the court, elegant and whimsical: the grand staircase, always present as a symbol of magnificence and opulence (sometimes more ostentatious than real). This vertical connection used exclusively to connect the level of the courtyard with the main floor should be read not only in terms of status symbol, but also in terms of costume. In fact, only one must be the large scale of communication with the outside, the others are not seen due to a desire for privacy that separates the reception area from the rooms in which more private life takes place. The elevations of the villa are generally characterized by an absolute respect for the laws of symmetry, both horizontally and vertically.

Conclusions

Mediterranean living has been the subject of a systematic study, first at the University of Palermo (1984 - 1992) and then at the University of Reggio Calabria (2002 - 2009) in the context of Projects of Relevant National Interest (PRIN). In this broad context of exchange, numerous courtyard structures have been surveyed, drawn and analysed, not only in Sicily, but also in Calabria and in the north of the Maghreb and it has been possible to ascertain how much the fence, the courtyard, the bagli which is a simple farm or a manor house or a villa, represents the symbolic place of exchange and the relationship between 'interiority' and 'exteriority'; a space open to meeting and exchange, where an event can occur, a representation is expressed, a narrative is constructed. The baglio in Sicily is a part that becomes the whole of the house, and the house is not a transparent place, but a shell that guards the heart of the internal space that houses the life of the community that inhabits it.

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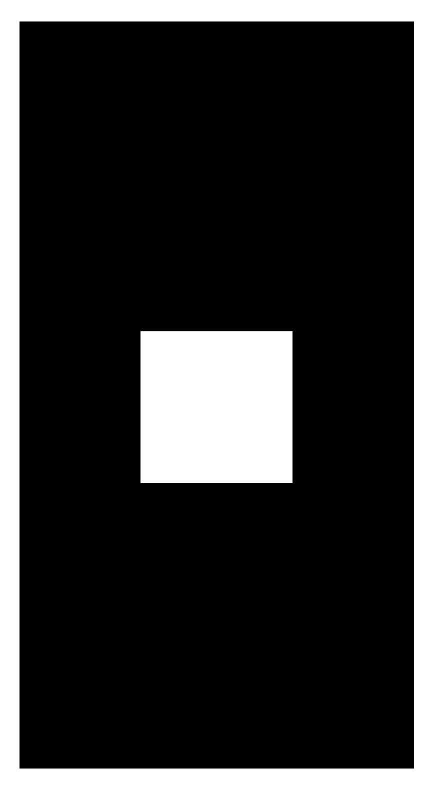
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7: Courtyard of tbe Baglio Aula, in Bonagia, Trapani. (Photo by Santi Caleca)



TRADITIONAL COURTYARD

17

THE DISAPPEARED ***PRATO*** BETWEEN THE WINGS. THE CASINO MEDICEO OF SAN MARCO IN FLORENCE AND ITS COURTYARD

FULVIA VANNUZZI

Abstract

The article reconstructs the sixteenth-century image, profoundly altered by following transformations, of the open courtyard of the Casino Mediceo in San Marco. The shape of this enclosure is interpreted as the result of a construction process, rather than as a structuring element of a specific building typology. The text also describes the essential features and the meaning of its original architectural layout and of the arrangement of the greenery, which has now disappeared.

Keywords

History of architecture in 16th century Florence, Casino Mediceo of San Marco, Bernardo Buontalenti, Francesco I de' Medici, courtyard.

Introduction

The great 'U' shaped size of the Casino Mediceo came to emerge almost unchallenged in the urban landscape of late sixteenth-century Florence (fig. **1**)[1]. The building is located near piazza San Marco next to the basilica[2], an area of the city that was, at the time, relatively peripheral and less dense than it is now. The monumental volume of the building was then inserted in the fragmented building fabric of the

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[1] This article summarizes one of the themes of the PhD thesis *Il casino Mediceo di San Marco. Bernardo Buontalenti con Francesco dei Medici* (supervisor prof.ssa Flavia Cantatore, co-supervisor prof.ssa Emanuela Ferretti, Università Sapienza di Roma, Dipartimento di Storia, Disegno e Restauro dell'Architettura), of imminent defense. About the Casino Mediceo: COVONI, P.F. (1892). *Il casino*…; FARA, A. (1988), pp. 156-165; FARA, A. (1995), pp. 59-60; BALDUCCI, A. (2003); MADIA, R. (2010); Firenze. Soprintendenza Archeologia, Belle Arti e Paesaggio. Archivio Storico. A 650, *Elaborato T1. Evoluzione e trasformazione del complesso*, in *Verifica sismica del Palazzo Buontalenti, via Cavour 57/59, Firenze* (2017); *Analisi storica preliminare*, in *Progetto di Fattibilità Tecnico Economica. Intervento di completa rifunzionalizzazione dell'immobile demaniale sito in Firenze, denominato Palazzo Buontalenti* (2022).

[2] On the transformations of this area in the XV and XVI centuries: ELAM, C. (1992).

block between via Larga, via Salvestrina, via San Gallo and via degli Arazzieri: it imposed, with its lateral wings, the existence of a vast open and free space (today completely altered) which, starting from the *sinu* enclosed between the two arms, encircled the building.
But which is the meaning of this enclosure, how did it originate and which are its peculiarities?



1: S. BUONSIGNORI, *Nova pulcherrimae civitatis Florentiae topographia accuratissime delineata*, 1584 ca., sheet 2, detail of the north-west area of piazza San Marco.



2: Casino Mediceo of San Marco, rear elevation on the courtyard (FARA, A. (1995), fig. 157 p. 104).

The open courtyard in the architectural typology of the 'casino of delights'

The Casino Mediceo represents a reference model for the architectural genre of the abode of delights[3], a typology that spread in Florence in the unbuilt areas between the perimeter of the walls and the edge of the city from the late fifteenth to the early seventeenth centuries[4]. The horizontality of the plastered walls in a winged layout, closed on the street front and airy in the open rear courtyard, combine the austere character of the urban palace with the rustic and pleasant one of the villa[5].

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3 RINALDI, A. (2007), pp. 31-33.
4 Among the many studies that Alessandro Rinaldi has dedicated to this phenomenon, we are citing in particular: RINALDI, A. (1981) and RINALDI, A. (1997).
5 GORI MONTANELLI, L. (1961), p. 214.

However, the rural vocation of the courtyard of the casino of San Marco is partially reduced by the absence of common spaces on the ground floor in direct contact with the greenery (the hall, gallery and chapel are in fact located on the *piano nobile*, according to the typical distribution criteria of the Renaissance palace)[6]. From a functional point of view, the courtyard of the Casino Mediceo appears atypical, since the laboratories of artisans, alchemists, and researchers for technological inventions of the Grand Duke overlook it[7]. Furthermore, from a formal point of view, the internal elevations are characterized by kneeling windows, a common feature of city dwellings[8], which give the side on the garden a character of urbanity almost equal to that on the street (fig. **2**). Finally, the perspective opening of the courtyard towards the countryside is actually limited by the facades of the buildings located on the opposite side of the block, along via San Gallo.

The courtyard as the outcome of a constructive process

The construction of the building, designed by Bernardo Buontalenti and commissioned by the Prince (then Grand Duke) Francesco I de' Medici, took place over about twenty years, starting from 1568, and progressed in parallel with the process of purchasing the land and existing buildings from the heirs of Ottaviano de' Medici[9]. The construction site began with the north wing (built on the previous Bernardetto palace) and proceeded in a second phase with the edification of the south wing (starting from the Alessandro palace) and of the longitudinal connecting body between them.

In reality, rather than the result of a typological choice, the courtyard of the Casino Mediceo therefore can be considered the outcome of a stratified construction process: the definition of the internal elevations in fact represents the final act of construction, which carries the responsibility of conferring unity to an architectural organism transformed over time and strongly conditioned by pre-existing structures[10].

From the casino of delights to the princely residence

In 1577 Francesco I handed over the property of the Casino Mediceo (in a still unfinished state) to his infant son Don Antonio, illegitimately born to his then-lover

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[6] The functional organization is described by BALDUCCI, A. (2003), pp. 35-65.
[7] About the workshops of the San Marco manufacture: BALDUCCI, A. (2003), pp. 65-81; BERETTA, M. (2014).
[8] On the architectural theme of kneeling windows: BELLUZZI, A. (2004), with bibliography reported therein.
[9] The process is reconstructed by BALDUCCI, A. (2003), pp. 1-21.
[10] In the perspective plan of Buonsignori (fig. **1**), the building appears probably still unfinished and the courtyard divided by the boundary walls between the previous properties.

Bianca Cappello, through a secret donation, aimed to guarantee him a personal patrimony[11]. It was precisely in the same year 1577 that the grand duke acquired the properties of Alessandro di Ottaviano de' Medici to build the south arm, thus starting the second phase of construction[12]. The tripling of the volume, the establishment of the winged layout and the definition of the central courtyard therefore seem to coincide with the desire to endow Don Antonio with a «palazzone»[13], which could in the future become the worthy city residence of a blood prince. The monumental proportions of the building and the urban features of the front overlooking the garden could therefore be motivated by the change of objective during the construction: the courtyard would then be no longer a part of a modest casino of delights but of a future princely residence. The same winged layout recalls that of Palazzo Pitti[14], which in any case underwent the same evolution: from Eleonora di Toledo's casino of delights it in fact became, with the subsequent expansion, a majestic residence blending with the garden[15]. Compared to the Palazzo Pitti, the abode of San Marco represents a sort of counterpart on the opposite side of the city.

The opening towards via San Gallo increases the urban character of the courtyard of the Casino Mediceo. This road, culminating in the homonymous entrance gate, was in fact one of the main arteries leading to the city (much more important than via Larga, which then stopped at the end of the block). Many of the buildings located on via San Gallo were acquired by Francesco de' Medici when the casino was built[16], probably precisely with the aim to ensure a direct access to this street. The existence of the secondary entrance from via San Gallo therefore creates a second overturned perspective, from which the casino appears as a two-faced organism and the facades of the courtyard become the architectural backdrop for a vast entry space[17].

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[11] About Don Antonio: COVONI, P.F. (1892). *Don Antonio*…; LUTI, F. (2006). On the news of the donation: *ivi*, pp. 52; 84.

[12] BALDUCCI, A. (2003), pp. 11-17.

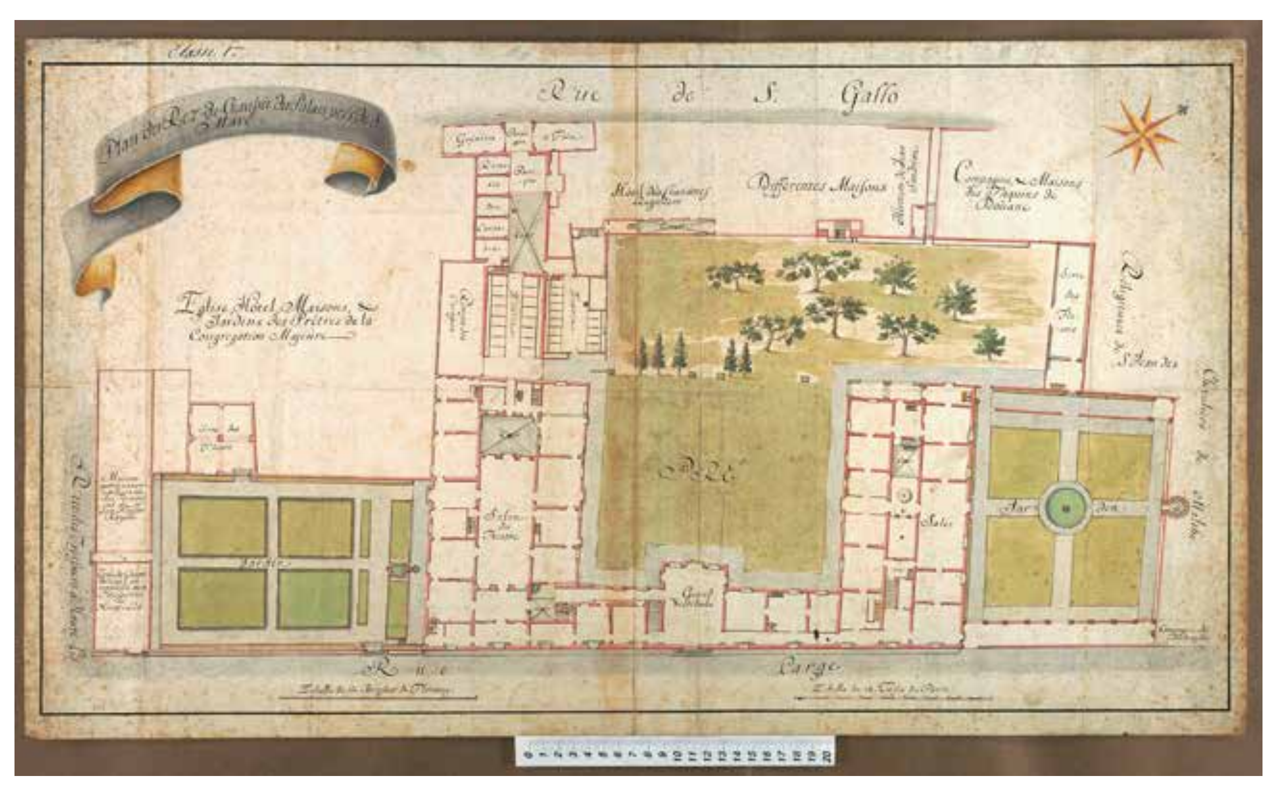
[13] The term is used in a letter of 1586 in which Simone Fortuna, ambassador of Urbino, reports to his duke that the casino «è riuscito un bellissimo e grandissimo palazzone, fabbricato apposta per il principe Don Antonio, favoritissimo più che fosse mai» (Firenze. Archivio di Stato. Ducato di Urbino. appendice 2. c. 236v: the document is published by BAROCCHI, P., GAETA-BERTELÀ, G. (1993), n. 320 p. 287). The Casino Mediceo is called 'palazzo' even in the text of the secret donation (the document is reported by SALTINI, G.E. (1898), pp. 204-205 and transcribed by BALDUCCI, A. (2003), n. 12 but with an incorrect archival shelf mark. The correct one is: Firenze. Archivio di Stato. Miscellanea medicea. 281. ins. 2; about the Casino Mediceo see c. 5r) and in general it is identified with this term in documents of the late sixteenth century (BALDUCCI, A. (2003), note 50 p. 107).

[14] GORI MONTANELLI, L. (1961), p. 213.

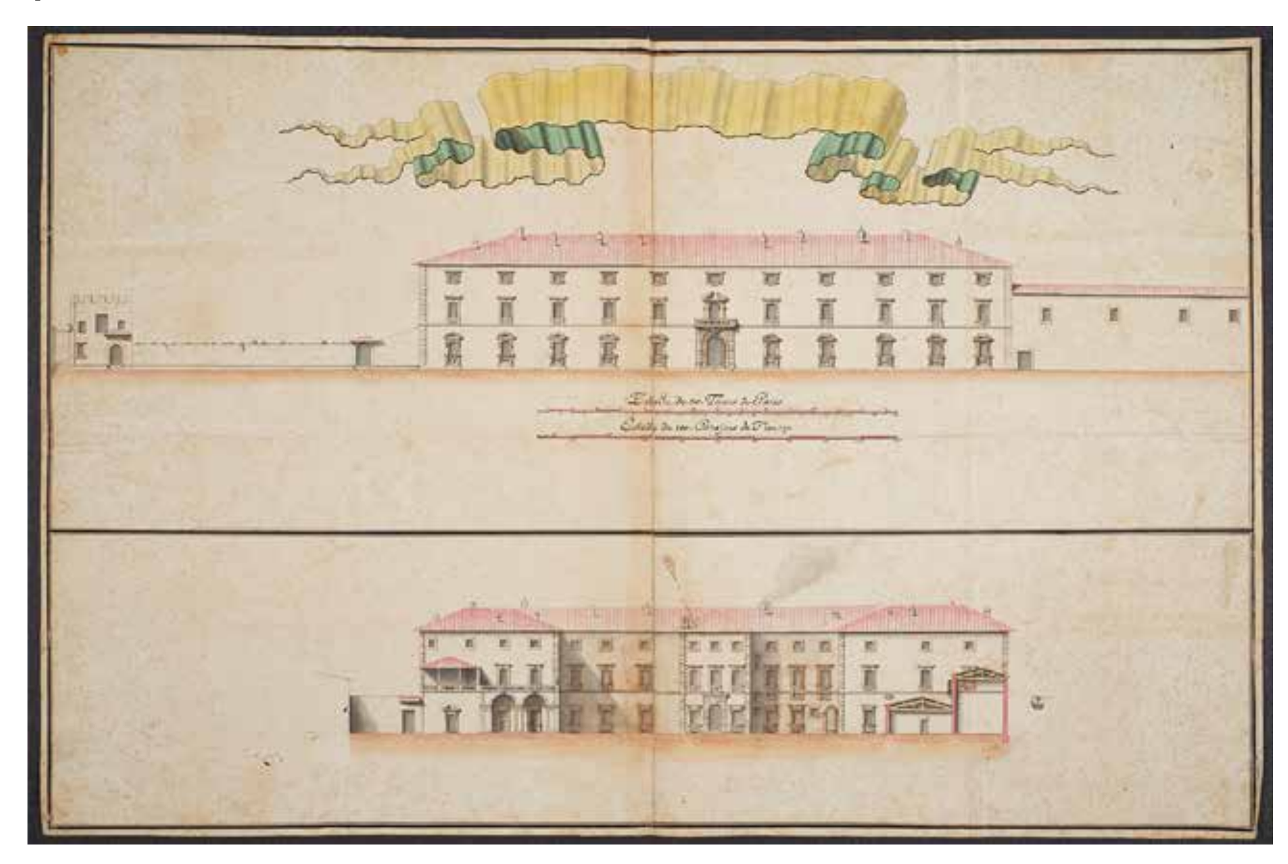
[15] Among the vast bibliography on Palazzo Pitti we are citing in particular the recent study of EDELSTEIN, B. (2022), for the interpretative approach.

[16] See note 9.

[17] The entrance from via San Gallo, through the Loggia dei Tessitori, was probably renovated by Don Antonio de' Medici around 1610 to give it a grater monumentality, during the construction of the stables and coach sheds (BALDUCCI, A. (2003), pp. 111-112). About the Loggia dei Tessitori: DEL BADIA, J. (1904).



3: Casino Mediceo of San Marco, plan of the ground floor (Firenze. Archivio Storico del Comune. Mairie di Firenze. Disegni. AMFCE. 0539. cass. 16. ins. A2). Su concessione del Ministero della Cultura con divieto di ulteriori riproduzioni o duplicazioni con qualsiasi mezzo.



4: Casino Mediceo of San Marco, main elevation on via Larga and rear elevation on the courtyard (Firenze. Gabinetto dei Disegni e delle Stampe degli Uffizi. 92620 high numbering). Su concessione del Ministero della Cultura con divieto di ulteriori riproduzioni o duplicazioni con qualsiasi mezzo.

The *prato* between the wings through the eighteenth-century drawings

The plan and elevations presented here (figg. **3-4**) are surveys of the building probably datable before 1775[18]. They are therefore precious testaments in that they show the complex before the irreversible transformation to the open spaces caused by the nineteenth-century interventions. The courtyard of the Casino Mediceo appeared open par excellence since it was actually the heart of a system of gardens linked to each other, which extended all around the building, beyond the boundary wall on via Larga up to the opposite limit of via San Gallo[19]. The surface of the area between the two arms was also called «prateria alla rustica»[20], because it was made up of a vast expanse of grass that did not have a geometric design, nor it was intended for botanical collecting (like the northern Giardino dei Semplici). This green expanse therefore remained the decidedly rural element of the building. The open courtyard of the Casino Mediceo was conceived as a *prato*, namely a meadow between the walled wings: like its twin at Boboli, it evoked the image of a valley which from the woods, located towards the head of the north arm, converged in the architectural scene of the courtyard[21]. Compared to the one of Pitti's, however, it was distinguished by not being the result of the excavation of a hill, but an expanse naturally determined by the flatness of the ground. Despite the alterations, the original architectural composition of the courtyard is still appreciable. The linearity of the facades is broken up by the volume containing the entrance which gives an apparent symmetry to the irregular layout, conditioned by the pre-existing structures: the protruding overhang in fact emphasizes the central axis of the connecting arm between the lateral wings[22]. The nineteenth-century surveys of the transversal north and south elevations of the courtyard (fig. **5**) reveal that not all the kneeling windows present today are original (some were only added in 1866)[23]: therefore the irregularity of the composition was even more evident in the sixteenth century.

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[18] The plan is published in FANELLI, G. (1973), vol. II: *Atlante*, fig. 466. The survey of the facades has instead emerged during the research conducted at the Gabinetto dei Disegni e delle Stampe degli Uffizi. For the dissertation of the dating and the origin of the two drawings, see the chapter of the thesis mentioned above, entitled *Il casino Mediceo attraverso i disegni e i documenti settecenteschi*.

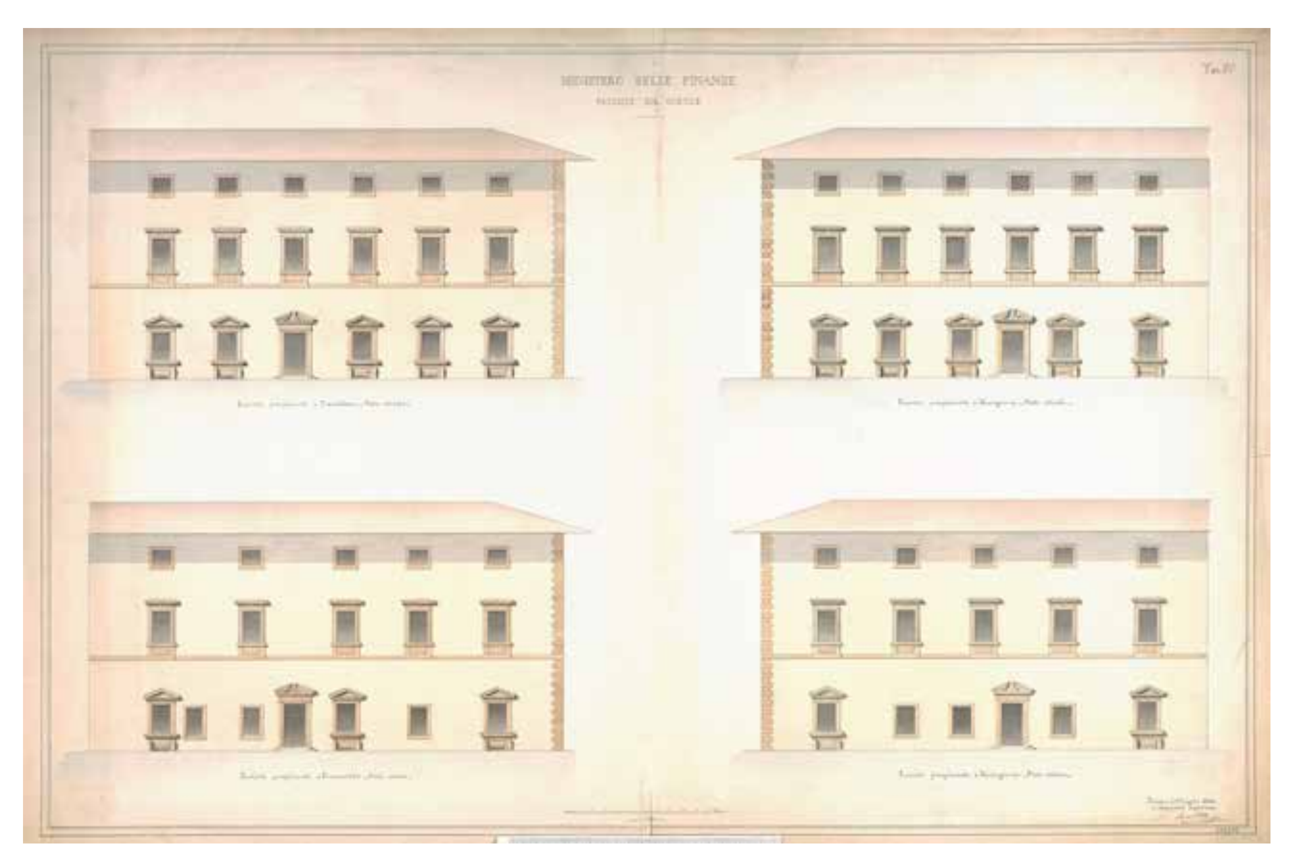
[19] The structure of the gardens is reconstructed in BALDUCCI, A. (2003), pp. 53-61.

[20] DEL MIGLIORE, F.L. (1684), p. 230. The central courtyard is called «prato» in eighteenth-century documents (BALDUCCI, A. (2003), note 86 p. 21).

[21] This interpretation of the meadow behind Pitti is proposed by RINALDI, A. (1987), p. 120: the various areas that make up Boboli (the lawn, the wild wood, the orchard) project the different elements, constituting the landscape on a territorial scale, within the urban garden, which mirrors those of the villa. This structure, which is common to the gardens of Castello and Boboli, is also repeated at the Casino Mediceo.

[22] BALDUCCI, A. (2003), pp. 82-83.

[23] The drawing is presented by MADIA, R. (2010), p. 56; fig. 37. For a summary of the transformations in the nineteenth century, see the paragraph of the thesis cited above, entitled *Trasfigurazione del casino Mediceo dall'Ottocento a oggi*.



5: Casino Mediceo of San Marco, elevations of the lateral wings on the courtyard (north on the left, south on the right): transformed state on the top and ancient state below (Firenze. Archivio Storico del Comune. Comune di Firenze. Disegni. CF car. 377/019). Su concessione del Ministero della Cultura con divieto di ulteriori riproduzioni o duplicazioni con qualsiasi mezzo.

Conclusions

Nothing remains of the *prato* between the lateral wings today. The devastating interventions carried out during the nineteenth century gradually saturated and transfigured the external spaces of the complex. The open shape of the courtyard is currently closed along the fourth side by a building constructed to house the *Direzione Generale del Demanio e delle Tasse* during the period of *Firenze Capitale*[24]. The arrangement with the central flowerbeds probably dates back to these same years[25]. We trust that the restoration site in progress, aimed to convert the ancient Casino Mediceo into the new headquarters of the European University Institute, will be able to restore, if not the original image, at least the dignity that belonged to the courtyard.

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[24] The building was constructed in place of the previous warehouse of the Customs of Florence, which had already been built in this position by altering the original shape of the courtyard. About the adaptation of the Casino Mediceo into the headquarters of the Customs (1845): BALDUCCI, A. (2003), pp. 151-153; on the subsequent transformation into the headquarters of the *Ministero delle Finanze e della Direzione del Tesoro* (before 1868): *Nascita di una capitale* (1985); FANTOZZI-MICALI, O. (1992), pp. 103-104; MADIA, R. (2010), pp. 53-56.

[25] FANTOZZI-MICALI, O. (1992), p. 104.

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First Prize and Buildner Student Award: Milano Super Flat,
by Ziyong Mu, Xuanchang Zhang, and Jinglin Wu (Tokyo Institute of Technology)

Jury comment excerpt: “Milano Super Flat rethinks the development strategy for the courtyards within Milan’s typical residential blocks. Milan’s urban grid has plentiful open spaces at the center of blocks. But these, the proposal claims, are at risk of suffering from detrimental vertical constructions that block light and air from apartments that give onto the courtyards. Further, such constructions remove what was once intended as common spaces for residents. The radical proposal considers building downward, excavating the below-grade level within courtyards across the city, and filling this subterranean space with dense rows of new apartments topped with gardens. Such a solution could revive the city with new shared spaces and offer much-needed additional housing stock.”

18

THE ENVIRONMENTAL IMPACT OF THE REHABILITATION PROJECT FOR THE COURTYARD OF SOUQ AL-HAMIDIYAH IN THE OLD CITY OF DAMASCUS

GHADA BILAL

Abstract

The environmental planning is part of the integrated planning and it is based on the study of proposed projects and their environmental impacts. A few years ago, environmental planning in our country was seen as a civilized cutter that was not productive. With the establishment of the corrective movement, one of the achievements of which was the initiation of the national wholesale state aimed at creating sustainable development and a clean environment.
Syria has begun to adopt integrated planning and environmental planning as an effective scientific tool in economic, social and many fields to ensure continuous development in balanced environmental conditions. During the past two years, Syria has witnessed development and modernization in several areas, including the urban area, especially projects that have environmental and economic repercussions, including the "Rehabilitation of the courtyard of Souq Al Hamidiyah ."

It was my choice to research this project because of its historical, architectural, commercial, tourism and economic importance.

Keywords: Souq Al Hamidiyah -the courtyard-environmental planning- environmental impact-old Damascus city

History of Damascus:

The history of Al- Hamidiya market is linked to the history of the city of Damascus as an essential part of its urban structure.

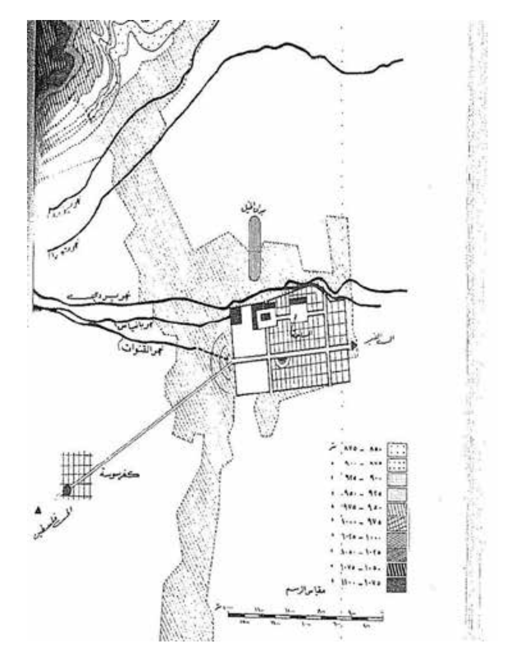
Damascus city is one of the oldest city in the world and the center of the Levant, and it is a strategic location that connecting Arab regions to each other.

The majority of Arabic linguists agree that the meaning of Damascus consists of two syllables DU + MASHQ and MASHQ root in old Arabic benefit watering (the Arabic Saqr) and Maha waterwheel in Arabic means its name (water) and this is consistent with the history of the region from a geographical point of view, especially the breakthrough Barada to the plain of Damascus, forming the Eastern and Western Ghouta Herodotus considered "Egypt the gift of the Nile", Damascus would not be existed without the river of Barada.

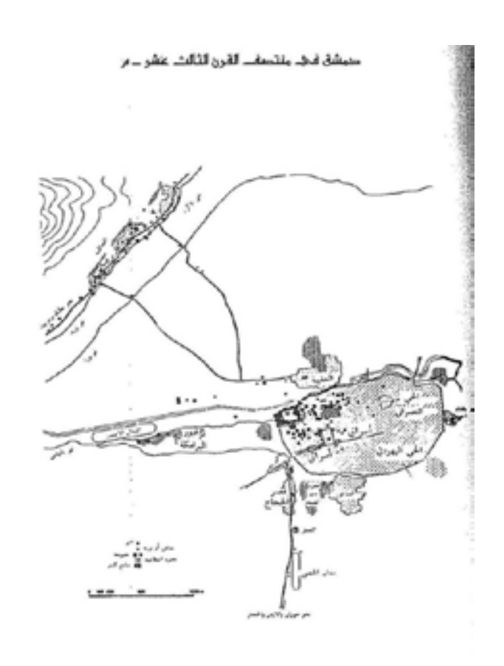
The most important role of the city was in the era of the Arabian Aramean, although the dwelling in the hills of the old city dates back to the era of the Amorite Arabs.

Damascus was occupied by Greece, the Romans, the Byzantines and the Persians, and Damascus became after the Arab-Islamic conquest the capital of the Umayyad Arab state, and lost its importance after the establishment of the Abbasid Arab state in 132 Hijri and the transfer of the capital of the caliphate to Iraq.

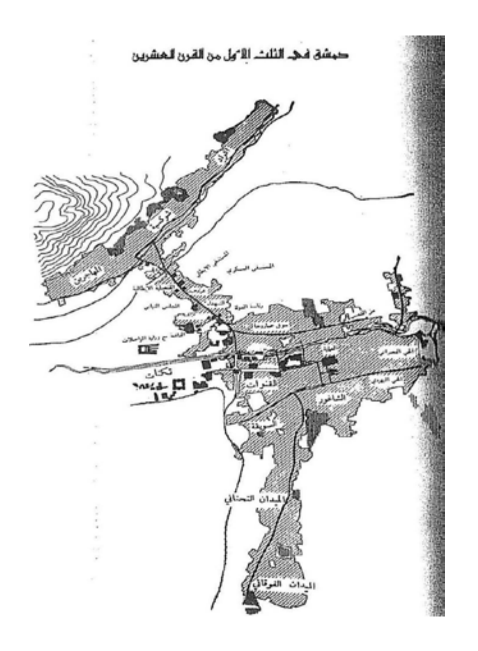
After the European colonial wave of Crusader colonial occupation at the end of the eleventh century, Damascus took on special importance. It was the headquarters of the great sultans NoureddineZanki and SalahaldinAlayoubi and apparent Baybars.



Picture 1: Damascus in the Aramaic era



Picture 2: Damascus in the middle of the thirteenth century AD



Picture 3: Damascus in the first third of the twentieth century

Souq AlHamidiya pre-rehabilitation urban, commercial, tourist :

1- Describe the architectural form:

We often wonder whether the current architectural form is the same as the original architectural form. It is known to us through the writings of historians and books of construction dating back to the era of the nineteenth and eighteenth century that the markets that existed in Damascus, including the Hamidiya market was covered and wooden coverage and that even cutouts within the shops were wooden and as a result of the frequent fires that occurred and to avoid the serious damage caused by these fires have replaced the wooden cover with metal and the markets became covered with tufts and iron structures and used in the form of hump or barrel, and among these markets was the SouqALHamidiya. The whole market was changed from wood to steel structures and zinc sheets.



Picture 4: The old wooden ceiling of Souq Al-Hamidiyah, 1900 AD



Picture 5: The facades of the first and second floors of shops

Regular architectural form:

It is a space within two columns above it a cornice and a cornice of the existing decorations on which the first floor above the ground floor is based. Vertical. (The second eastern section), the newest 100 years after the western section is occupied with basalt stone. The market is architecturally and architecturally passed through a wide range of stages, and most of these stages are not documented and we have no documents and there are different architectural forms but one character and this important point: It is this market consisting of stone pavements as a traffic axis based on the ends of a group of shops according to Unified architectural form, roofed with barrel. But before the barrel ceiling, there are pictures that it was of a wooden gabled form.

2- Description of the architectural form of shops in the courtyard of Souq Al-Hamidiya :

The most important thing is the blanks (shops) between two vertical pillars in the form of an ornamental pillar with a base and crown and each column is occupied with vertical stone (limestone or white limestone) or basalt stone (black stone), and these two columns are surmounted in the form of a decorative frieze (This is for the ground floor of the shops). As for the first floor (upper): There are several forms of windows can be monitored through the pictures, but there are some decorative units that appear to have been occupied during the periods of restoration, especially where it appears



Picture 6: The process of showing the archaeological form of each store (two archaeological columns and an archaeological horizontal lintel)

(Baroque style), which indicates that it belongs to the second half of the ninth century It is believed to date back to the time of the visit of Gliom I (Emperor of Germany) when he visited Damascus at the end of the nineteenth century. Then the facades were painted white, while the building material occupied by the shops is as we have seen from the rubble stone and covered with a layer of clay and limestone, or grilled brick or milk powder in the sun or grilled oven, there are also wooden partitions (occupied by Baghdadi style) and these partitions are not It has any structural value but is a wooden cutter and not a wall. The roof is either a horizontal roof filled with concrete or a gabled roof with a wooden structure. (All of these are observations we saw during the restoration).

The **dimensions** of the market is about 440 meters long, 15 meters wide and two floors high.

- Discerption the courtyard of Souq Al-Hamidiyah:

It starts from the western section (the western market), where the northern side is located above the castle hotel and very close to the towers of the southern section, it was rebuilt and restored after being hit in 1925 during the French bombing of the city of Damascus, where the neighborhood of SidiAmoud (Harika) was destroyed, and it is clear Through the group of buildings built in the era of the late twenties and until the mid-thirties in the area of Harika, that is, after the destruction of this neighborhood, the old traditional urban fabric ended because after it burned and became a square (space), it re-planned in a strangely, and part of it became Adjacent to the Hamidiye market with the survival of a small part of the market Alrawam on the southern rib of the western section of the market. Consequently, the northern section is adjacent to the castle towers and the southern section is punctuated by these buildings built during the French Mandate era.



Picture 7: South of the Citadel of Damascus and the burnt Souq al-Hamidiyeh , 1925

PAVING OF THE MAIN ROAD OF THE COURTYARD OF SOUQ AL-HAMIDIYAH:

.1 The old situation of the road:

All the streets in old Damascus were tiled with black basalt stones, with regular cubic shapes and a convex exterior. This paving method was standard for traction animals that were used in the past but are not very suitable for vehicles and walking on them is uncomfortable. The traveler of the eighth and nineteenth centuries spoke of this type of rapture and was one of the wonders of the Levant in their situation.

However, through the old documentary images of from the courtyard of Souq Al-Hamidiya was found that the road was not provided with sidewalks on both ends as it is the current situation, but was only from the stones of the black convex and convex face in one level all the way.

.2 Work that involving the completion of the new road shape:

1. The old blocks and sidewalks placed in the last few years have been removed and assembled in the Muskiyeh Square, where cars were allowed to pass into the market.

2 - Lowering the level of some places of the road and return it to its old level to show the base of the columns for shops located on both ends of the road.

3- Re-paving the road in the new frankincense, in the place of the road axis, and this new frankincense has made the stone surface flat and not convex (as it was previously). The aim is that this market no longer allows the passage of cars inside it at any time, and thus became walking Easier than if the surface of its stones convex.

4- Re-paving the old sidewalks with the old frankincense which was extracted from the road axis and assembled in the Muskiyeh Square, but after the abrasion of the convex surface of the old frankincense the shape of its outer face becomes flat and all the way is also made on one level over its entire width.

ENVIRONMENTAL IMPLICATIONS OF THE WORK PERFORMED IN THE COURTYARD OF SOUQ AL-HAMIDIYA:

1-.Environmental impact of temperature during the seasons:

In general, the winter of Damascus is cold, which is also the season when the rains fall. The presence of such coverage provides a fairly closed atmosphere inside the market, and also as a result of congestion by pedestrians and heated by shops that open their doors to the indoor market compared to the temperature of the winter outside the market, that makes the process of selling, shopping and tourism easier.



Picture 8: The process of lowering the level of the road in order to show the base of the archaeological column of the shop

As for the summer of Damascus city is long and hot as we know and therefore the coverage provides shade along the entire market in addition to the white limestone coverage of most of the facades and columns of the shop is not absorbable heat, all this results in clear thermal differences between outside the market under the sun and inside The shop is under coverage.

2- **. Negative environmental impact on the courtyard of Souq Al-Hamidiyah as a result of completing the coverage:**

One of the most important environmental problems experienced by the market is the element which is called (sweeping or dissipating pollutants).

Air ventilation within the market because of the ventilation holes distributed to cover the market has a great importance, but the completion of the coverage of the gap between the western section and the eastern section of the market increased this problem rather than solved it was this vacuum can be considered a very important ventilation hole in the market clearly in the process of dissipating a vacuuming contaminants from under the coverage for each of the sections of the market.

A study conducted by (Urban Development Management Program in Syria) gave the results of measuring air pollutants in the city of Damascus and in Medhat Pasha market. It also gave negative effects caused by these gases including CO2, SO2, Co and nitrogen oxides gases No, NO2. Pollution rate of SO2 gas in the old city of Damascus:

SO2 is the main factor in the acute and chronic increase in asthma and pneumonia, and the presence of a large proportion of sulfuric acid in the air is reflected in the impact of archaeological buildings in particular and damaged stones and this is evident on buildings.

CONCLUSION

That there is a serious environmental pollution clearly controls the area in front of the entrance of thecourtyard of Souq Al-Hamidiya, at the corner of the intersection of Nasr Street with Revolution Street, this place (Darwishiya Avenue) has been conducted or a clear traffic solution (tunnel and garden Darwishih) for what this tunnel offers From the relief of the chaos arising from the movement of pedestrians during the cutting of the street and caused by the obstruction of the movement of cars The high rate of noise (especially car reins) and gaseous pollutants emitted by cars, Consequently, both pedestrians and cars are organized through pedestrians crossing this tunnel in addition to the contents of this tunnel shops help the passers-by and tourists to buy and at the exit of the tunnel from the courtyard of Souq Al-Hamidiya at Darwishiya Square has been invested in the form of a simple garden gives aesthetic and elegant appearance The area is a break for tourists and pedestrians through the tunnel. Its construction is also intended to protect the southern wall of the Hamidiya market from being sabotaged by the inhabitants of that area.



Picture 9: The roof covering Al-Hamidiyah Market

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-Documentary photos and plans for the implementation of the Al-Hamidiyah Market Rehabilitation Project (the Documentation Department in the Old Damascus Protection Committee).

-Measurements of environmental pollution (noise - gaseous pollutants) from Dr. Muhammad Al-Oudat at the National Energy Authority.

19

CONTEMPORARY HOME COURTYARD

IMAD KAYYALI

Abstract

This article discusses the use of the courtyards in the contemporary house design in the context of function, environment and culture. Some contemporary houses feature open air courtyards as an extension of the living space and entertainment. Some of them are inspired by the traditional architecture in the Mediterranean including the Andalusian style. The courtyard is commonly used as a passive energy storage, aerodynamic space, beside, it provides protected and private outdoor area.

Keywords

Ventilation, Privacy, Tranquility, natural light

Introduction

Early examples of courtyard houses can be found in the Jordan Valley ca. Neolithic period according to some resources, and back to 5000 BC in Ur in modern Iraq. [1]
Traditionally, courtyards have been popular for their climate and social qualities, especially in warm climates where a courtyard creates moderating element, creating a transitional space for the microclimate.
Moreover, the courtyard offers a pleasant protected outdoor area that ensures privacy for outdoor activities and family gatherings as an extension of the living areas inside the house. Privacy as a term describes a variety of cultural, social and environmental perspectives. While privacy has cultural preference in the Middle East, it had more of social and environmental importance for the 1930s houses in Los Angeles, where the courtyards became the transitional urban space between the busy and dense public street, and the private house interior. The following sections shed lights on some of the most important characteristics and utilization of courtyards in house design.[2]

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1 Schoenauer, N. (1981). *6,000 years of housing*, New York, Garland STPM Press, 1981

2 Polyzoides, S.. et. al. (1992). *Courtyard Housing in Los Angeles: A Typical Analaysis*, New York, Priceton Architectural Press.

Culture and Social perspectives - Privacy

Courtyards offer protected environments for social activities, especially in dense urban areas where the backyard is visible from the surrounding neighborhood and probably from high rise buildings. Courtyards provide tranquility space within the house to enjoy natural sunlight and greenery with privacy. In some cultures, such as the Arab and Muslim societies, privacy is a cultural need.

The loggia or Iwan is a pleasant courtyard feature of a semi-opened space, with a roof and raised floor sometimes that provides an interesting private alcove within the courtyard space. This loggia space can be located at the outside wall or at the inner wall with access from the adjacent space for a direct outdoor breath. The loggia is a good example of another transitional space, where the outdoor and the indoor spaces sit on the two far ends, the courtyard is next space to the outdoor, and the loggia can be the closest to the indoor. The loggia also provides an extra treated microclimate space in addition to its privacy quality.

Other features such as the Mashrabiya have been also used on the higher floors to ensure extra privacy. At the same, the Mashrabiya adds an interesting feature to the courtyard interior walls, beside it is also useful for connecting with the courtyard occupants.

Balconies and terraces are also encouraged to feature in the courtyard that add more interaction with the courtyard.

The courtyard can also be classified as a transitional space between the indoor and the outdoor, especially when it is accessible from the outside, such as an entrance court.



Figure 1 Private house- courtyard, Jordan

Health and Sustainability- Natural Light

Courtyards offer natural light for deep spaces within the house or the building. Providing natural light through an inner courtyard ensures a healthy work and life environment and saves energy by reducing the need for supplementary artificial lighting for the deep quarters of the building. Moreover, Courtyards provide pleasant outdoor spaces for having a break or performing social activities. Courtyard typology span between private enclosed home-space, and an urban space between office blocks or within an office building, that works as a transitional space to allow for some privacy and enclosure, away from the public street for some quiet conversations.

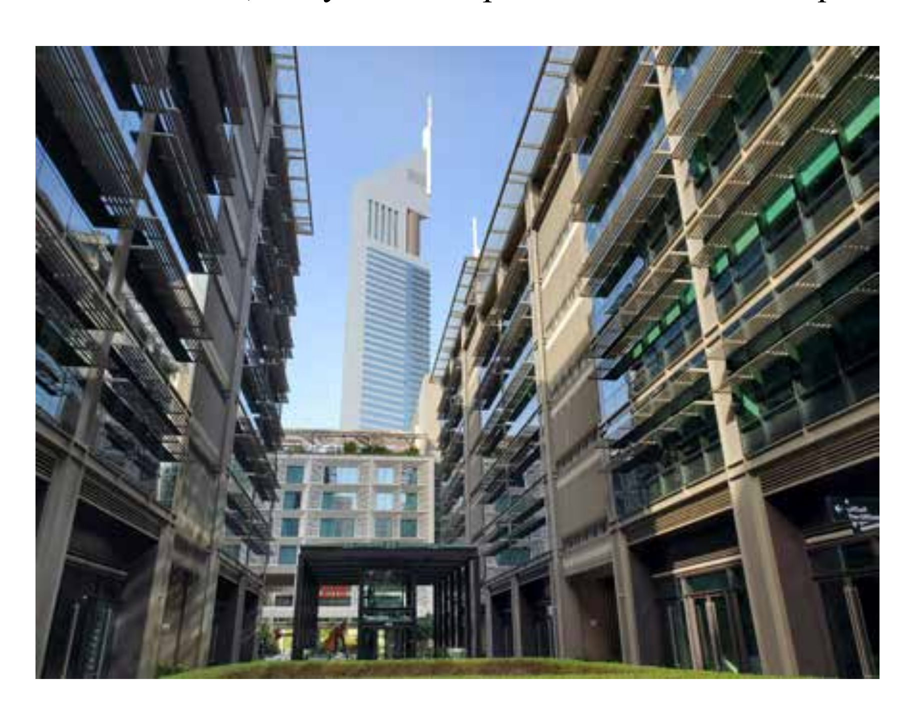


Figure 2 DIFC, Dubai, UAE. Photo credit: Imad Kayyali

Climatic Adaptation

Courtyards offer several ventilation opportunities. For example it can provide a central area to vent the warm air to escape to outside. On the other hand it provides a reasonable cross circulation tool, where air can move from and to the rooms through the courtyard. Traditionally, courtyards, due to their large area and higher walls than the surrounding elements of the house, generate negative pressure due to air movement above the high walls, that forces air inside the surrounding rooms to move out to balance the pressure. These rooms used to be equipped with outlets that are connected to the wind captures, usually oriented to capture the pleasant breeze.
Moreover, the courtyard, when designed with careful proportions and orientation can perform as an efficient climate modifier. This is also related to that the courtyard is a

transitional space that can be a moderator space for the microclimate surrounding the house. The following are the main considerations for climatic adaptations in courtyard design:

- **Climate generating elements**: Considerations shall be made to solar path and prevailing winds when designing buildings in general including their courtyards in order to maximise or optimise the advantages of the climate determining elements i.e. the sun and the winds. [3] The loggia element (see the Culture and social Perspective), works as another transitional space, and has been traditionally used to add a wind catcher to supply air to the courtyard.
- **Vegetation**: Vegetation is always encouraged to be part of the courtyard for it has an evaporation cooling effect that enhances microclimate.
- **Shading**: Shading is another element to be studied along with the vegetation, where trellis, umbrellas and canopies can be also considered for shading, in addition to modern retractable roofing of light and sustainable materials such as PTFE.
- **Humidification elements**: Fountains and other types of water features are sources for evaporation cooling that modifies the microclimate.

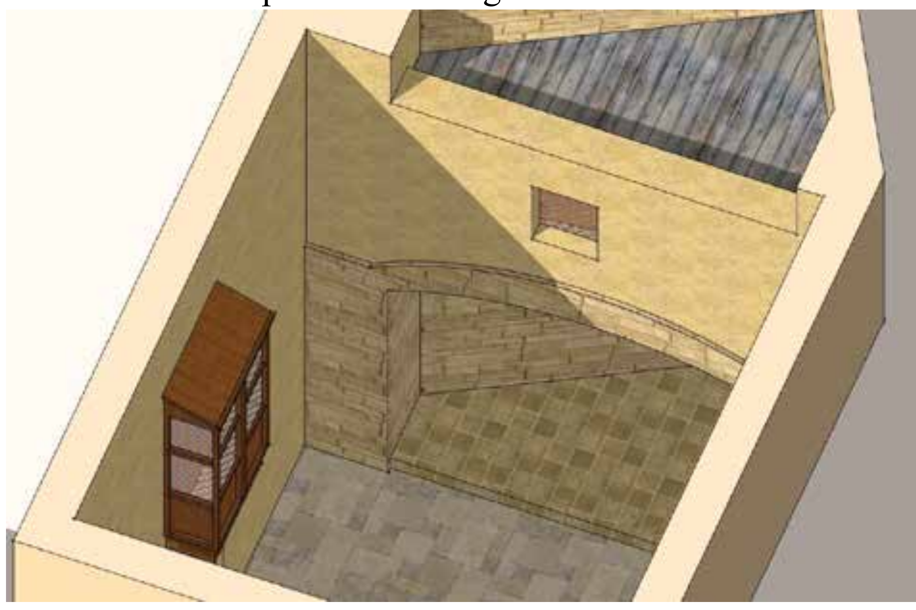


Figure 3 Private House, Jordan

3 Fathy, H. (1986). Natural Energy and Vernacular Architecture, University of Chicago Press, Chicago, p. 42

Well Being- Bringing Nature Inside

Interaction with the outdoor is among the most appealing features of a courtyard, where the house breathes inwards with a completely enclosed courtyard, here is an example of a courtyard house that we have designed for a client in the Gulf Region, featuring 3 courtyards, two of them were enclosed. For privacy purpose, the courtyards have been



Figure 4 P. N. House in KSA

designated for different quarters: the private courtyard is surrounded by the family room and the bedrooms section. The public courtyard was designed to be an extension of the formal living hall. These two courtyards were considered to bring greenery and natural elements to inside the house. Vegetation was encouraged to be added to these two open spaces for its evaporation cooling, and to bring the elements of nature to inside the deep quarters of the house. The third courtyard is also connected to the formal sitting and opens to the back garden, when more open outdoor area is needed.

Connection with the outdoor

Hattan Villas: Hattan means light rain in Arabic, it was the name given to a group of residential developments in Dubai that I had designed in collaboration with a local office. Four prototypes have been used for the different phases. The largest villa type (L2) features two courtyards; one on the entrance, and the second is accessed from the living/dining lounge, the kitchen and a gallery passage. The space was enlarged with the addition of the side setback, where an arcade was added at the two sides to define the extended area of the courtyard. These villas with basic feature have been sold to the public so they can have additional features to enhance the space, such as a water feature at the external wall with water cascading sound, a fountain in the middle, etc. in addition to the courtyard furniture.



Figure 5 Hattan Villa Type L2- Layout

The second largest villa type (L1) features a large rectangular courtyard, surrounded by the kitchen corridor, study room and the family room. The courtyard features a covered loggia- (Iwan), offering a more protected and well shaded corner. It was also designed to be visible from the kitchen through windows and doors on the corridor, so that the mother can watch her children when playing in the court, from the kitchen.



Figure 7 Hattan Villa Type L1- Courtyard

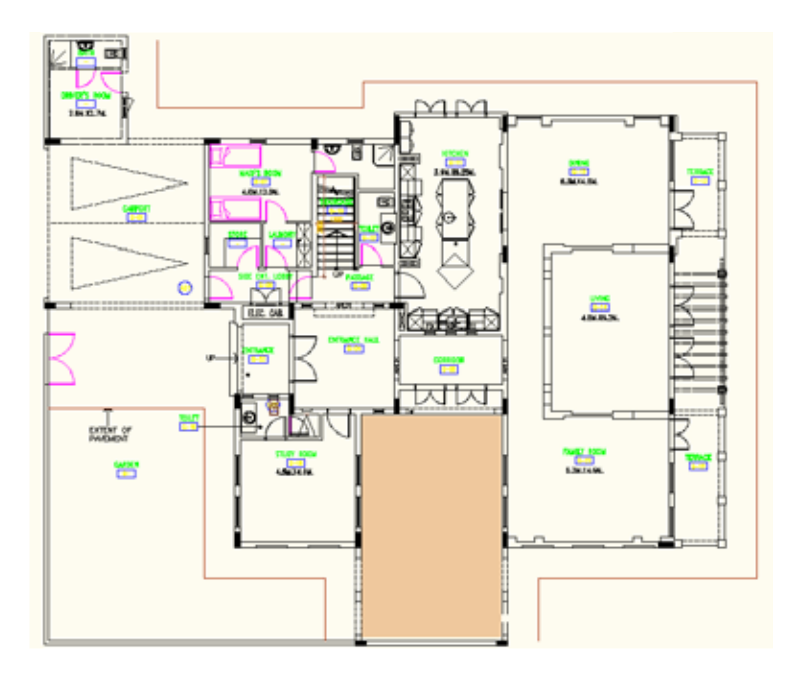


Figure 6 Hattan Villa Type L1- Layout

Conclusions

Traditionally, courtyard has been used as an essential social and environmental house feature in the Mediterranean region in general. Currently, the courtyard continues to offer the same values with more of contemporary functions, cross cultural features, current life requirements as well as its contribution in energy saving and day light qualities.

Modern design trellis is a regular feature in the contemporary designs that provide extra shading to parts of the courtyard, allowing vines to provide a pleasant greenery feature.

Modern technology offers retractable roofing for the courtyard as an alternative to the traditional awnings, umbrellas or trellis for privacy, to hide more sun light, or to offer protection from rain, in a more flexible and convenient way.
Courtyards are functional features of the house that can be used for extra sitting and dining, entertainment, exercising, or just enjoying the outdoor in a quiet and tranquil environment for meditation and contemplation.

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20

COURTYARDS IN THE CENTER OF RURAL URBAN TRANSFORMATION IN EAST JERUSALEM

MAHA SAMMAN, AMAAL ABU GHOSH

Abstract

As in many other Mediterranean and Middle Eastern cities, the courtyard was central in the development of spatial organization of residential space in East Jerusalem. Since the mid nineteenth century, Courtyards in the vernacular Palestinian architecture affected how residential typologies evolved. In both rural and urban areas, courtyards were considered an important organizational space in everyday activities and were intrinsic to human habitation. People could not but transform the courtyard to new forms in developed urban mansions or modern houses. This, however, has changed due to political, and social contexts as well as international influences.

Keywords

Jerusalem, courtyard, urban-rural, everyday life, spatial typologies.

Introduction

The courtyard (Hosh in Arabic) has been an important private outdoor space in residential buildings for centuries. This typology was common in Middle Eastern and Mediterranean cities and constituted an important part of their architectural identity. It was a private focal space open to the sky and used for outdoor domestic and social activities. It was usually tiled and often had a central fountain[1]. In Palestine and specifically in Jerusalem, courtyards have been an important component in the identity of Palestinian Architecture in both urban and rural areas. In rural areas, courtyards serve as a place where families gather to work and socialize. In urban areas, courtyards serve as a place where neighbors can meet and get to know each other. Courtyards have also been used to promote intergenerational interaction, with older members of the

[1] Gupta, R. and Joshi, M. (2021). Courtyard: A Look at the Relevance of Courtyard Space in Contemporary Houses. *Civil Engineering and Architecture* 9(7): pp. 2261-2272, DOI: 10.13189/cea.2021.090713.

community passing down knowledge and traditions to younger generations.[2] Though the courtyard developed differently in urban and rural areas, it reflected social economic environmental and climatic geographical considerations and showed the cohesion of the society reflecting sustainability in its spatial and social forms. This, however, has been changing under the difficult political context Jerusalem has been facing and especially since 1948.

Since the mid-nineteenth century, the city of Jerusalem has encountered several political transformations that have highly influenced urban and rural lives, their interactions, as well as their spatial architectural configurations. Till the beginning of the twentieth century, Jerusalem was under Ottoman Rule followed by the British Mandate Rule in 1917. Between 1948 and 1967, the city was divided with West Jerusalem under Israeli control and East Jerusalem under Jordanian Rule. After 1967, it was fully occupied by Israel. These, in addition to regional and international influences, have affected residential building construction, its development, design, structures, building materials as well as their interactions with social, economic, and environmental considerations. While courtyards continued for a long period of time to be a focal main space in residential building, nowadays, East Jerusalem residential development is mostly based on apartment construction where the typology of courtyards has almost disappeared or adapted in a modern way. However, courtyards remain part of the important cultural heritage typology. The paper shall focus on the dynamics of development of the courtyard spatial configuration in rural and urban areas since the British Mandate till its transformation in different forms and until its almost disappearance in today's residential architecture in East Jerusalem.

Discussion

A courtyard in the Palestinian Architecture is usually a small, central, enclosed space often located at the entrance of a household and serves as a transitional space between private and public realms. Its size may vary according to location, context morphology and social status of its residents. It is usually surrounded by high walls or buildings and thus provides the residents with a sense of security and privacy. It was used for several functions including domestic activities done by women such as cooking, weaving and spinning, and social activities such as family gatherings or weddings, as well as agriculture related activities such as storing products or for livestock raising.[3]

During the British Mandate, courtyards were central in the development of housing typologies in Jerusalem. Residential typologies in urban areas started as part of the

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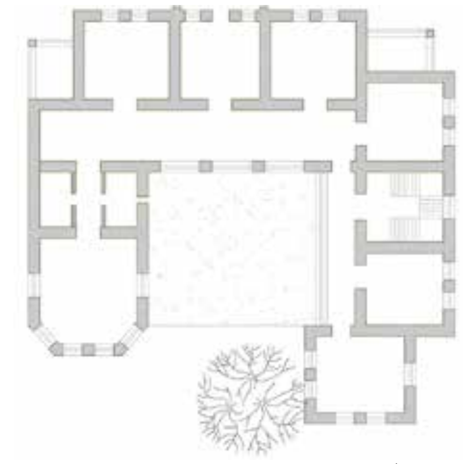
[2] Nitzan-Shiftan, A. (2006). The Israeli 'Place' in East Jerusalem: How Israeli architects appropriated the Palestinian aesthetic after the '67 War. Jerusalem Quarterly 27, 15-27.

[3] Carabelli, R. (2019). *Architecture And Ways Of Living: Traditional And Modern Palestinian Villages And Cities*, EU published study: My Heritage, My Identity.

urban morphology of the walled city of Jerusalem that had connected one- or two-storey residential units clustered and connected in courtyards and alleys, The courtyard was the space for the enjoyment of fresh air and its circulation in the condensed urban fabric.

When people started to go to live outside the walled cities, they built urban mansions in the surrounding areas of the walled city such as the neighborhoods of Musrara, Sheikh Jarrah or Wadi Al-Joz. These mansions were huge in comparison with residential typologies of the walled city and usually of two floors (See Figure 1). Though they were roofed individual buildings, they were influenced by the courtyard spatial configuration existing in the walled city. A central space – called *Liwan*- has replaced the courtyard and was surrounded by rooms all having their doors in the two floors towards it.

In rural areas in the outskirts of Jerusalem such as Shufat, Al-Tur, Abu Deis, Ezariyyeh, courtyards were simpler in configurations and developed from the combination of a number of rooms for the same or an extended family (See Figure 2). Buildings started as one cubical block built with stone with gradual repetition to surround a space that formed the courtyard. Windows and doors are towards the courtyard while the windows in the other outer sites are small to adhere with privacy concerns. Residential buildings construction was influenced by social and environmental concerns. Climatic considerations were also considered in terms of orientation of building, window openings and spatial distribution to provide a good air flow and sunlight. Each residential complex would have its own courtyard and would be linked with other residential complexes through narrow alleys well-proportioned to provide an organic human friendly spatial organization and providing a sense of cohesion and rural identity.



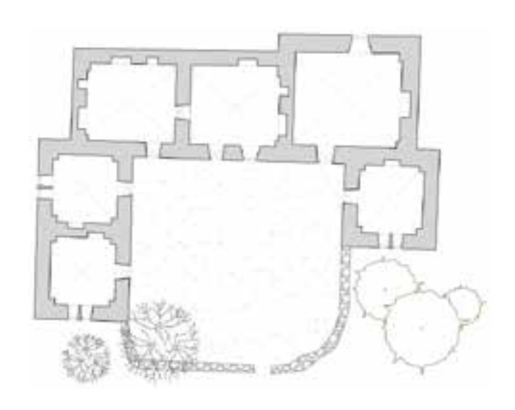
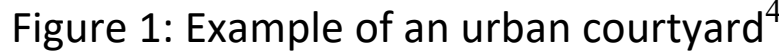


Figure 1: Example of an urban courtyard[4]

Figure 2: Example of a rural courtyard[5]



[4] Redrawn from Abuarkub, M. (2019). *Courtyard in Traditional Houses in Palestine, Scientific Subject Review*, p. 88.

[5] Ibid.

Under the British Mandate, urban residents living outside the walled city and rural residents were distant. Urban and rural population had little interaction especially that those living in urban mansions were rich and had a high social status. Rural residents maintained their traditional lifestyle that was based on agriculture and livestock raising for living. The spatial configuration of their residences was different but still based on the centrality of the courtyard or liwan in urban mansions.

Between 1947 and 1967, Jerusalem became a divided city with the Eastern part under the Jordanian rule; the relations between peasants and city families have improved, and more interactions developed. This was clearly reflected on how new residential spaces were built and inhabited. Rural people (peasants) who owned lands or bought them in areas surrounding their villages and not far from the walled city, built modern houses influenced by the urban mansions and by regional developments. They were also encouraged because of the infrastructural developments under the British Mandate and construction of roads connecting Jerusalem with other cities. The residential buildings were along the main roads or in proximity to them. They included apartments of one or more floors. The central courtyard was not part of the spatial configuration but was transformed into a roofed central space called "Liwan" and was more of a circulation space with several doors leading to the different spaces in the house- bedrooms, kitchen, veranda, guest room, staircase; a space difficult to furnish because of all these doors.[6]

After 1967, the Israeli occupation of Jerusalem was extended to East Jerusalem, and residential developments were subject to the Israeli policies and regulation through the Israeli Jerusalem Municipality. Expanded urban areas started to include new typologies of more open plans. International influences and Israeli policies on residential building constructions have made these buildings slowly give up on courtyards and *liwans.*
After the 1990s, and 2000s residential building construction became more subject to a very strict and expensive procedure of building permit acquirement, and building without permits subjected people to house demolition. Also, confiscation of lands and more Israeli settlement construction, as well as the closure of the city through the Separation Wall and checkpoints has led to a situation where apartments are very expensive and some areas are overcrowded and suffer from lack of basic facilities. In her thesis, Nitzan-Shiftan argues that the transformation of Jerusalem's architecture was part of a broader effort to "Israelize" the city, which involved the imposition of Israeli national symbols and architectural styles on the city's-built environment.[7]

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[6] Samman, M. And Saifi, Y. (2021. Adapting Modernity: Designing with Modern Architecture in East Jerusalem, 1948–1967, *Journal of Design History* 34: 2, 129-148.

[7] Nitzan-Shiftan, A. (2006). The Israeli 'Place' in East Jerusalem: How Israeli architects appropriated the Palestinian aesthetic after the '67 War. Jerusalem Quarterly 27, 15-27.

Conclusion

Palestinian architecture is a unique blend of various influences that have shaped its development over time. It is heavily influenced by the region's cultural, social, environmental and political factors. Residential typologies with the courtyard as a central space reflecting socio-cultural Palestinian values and identities have been transformed into politicized resilient spaces. Despite that, courtyards have played a crucial role in the spatial transformation of both rural and urban areas in East Jerusalem. Their centrality can be seen in their social and cultural significance, their role in urbanization, their architectural heritage, and their contribution to Palestinian spatial identity. As such, preserving courtyards in East Jerusalem is essential to maintaining the city's cultural and historical heritage.

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INSIDE OUT

A TIME TO THINK AND FREEDOM TO FOCUS



21

COURTYARDS AND SUSTAINABILITY IN TRADITIONAL HOUSES IN THE MEDITERRANEAN

MAJIDA YAKHLEF

Abstract

The traditional courtyard house is the most common building design style connected to the Mediterranean region. The courtyard considers a primary source of the house's light, fresh air, temperature microclimate modifier, and liveliest and most secure area. Therefore Courtyard houses have several long-term advantages, including environmental, social-cultural, and formal advantages. This study aims to review courtyards' sustainable benefits and investigate their impact on sustainability in traditional houses in the Mediterranean.

Keywords

Courtyards, traditional houses, Mediterrean, Sustainability, benefits.

Introduction

The definition of sustainability and sustainable design is an approach that aims to develop the indoor and outdoor quality of the building environment by minimizing the adverse effects imposed on the natural environment and buildings (Iwaro and Mwasha, 2013). The traditional courtyard houses are one of the main building designs and architectural features used to generate a convenient, low-energy environment. Furthermore, the courtyard has several perspectives: from the patio perspective, it is an outdoor space, whereas, from the topological perspective, it is an interior concave protected space. Courtyard types have been developed based on the experiences of modern and traditional architects in this field. The purpose of this study is to review the courtyard's sustainable benefits and investigate their types and impacts on sustainability in traditional Mediterranean houses.

Courtyards and Sustainable benefits

Several types and features of courtyards are differentiated to suit the climate and temperature of built houses, as they are used widely in hot, tropical, and cold

temperatures. Tier are various benefits in courtyard buildings, including environmental, social-cultural, and formal advantages. From environmentally sustainable benefits, courtyards houses utilize natural energy sources to guarantee rational energy use and reduce energy consumption demands. Furthermore, courtyards are the primary source of a house's light, fresh air, and temperature microclimate modifier. This architectural feature has also survived for over 5000 years due to its potential for a thermally comfortable living area and the ability to minimize peak temperature, lower humidity levels, and track air breezes in houses.

The idea of having courtyards from an environmental perspective came from the need for a natural source of cooling, heating, lighting, and fresh air in traditional houses. Sun, wind, and humidity are the main factors that could affect a courtyard's climate function (Wadah, 2006). Raydan (2006) also states that when placed in proper spaces, courtyards are essential in house heating since they simultaneously work as sun collectors and protectors. Additionally, Taleghani et al. (2015) clarified that courtyards develop wind effects and increase the house's humidity.
On the other hand, from the social-cultural benefits, courtyards are recognized as private, secure areas that offer safe places to rest or perform outdoor activities such as playing with children. That explains the idea of using different shapes of courtyards at various social facilities such as schools, kindergartens, hospitals, etc. (Das, 2006).
While the formal benefit of courtyards is their ability to have the best view and access to other building spaces, for example, using the courtyard on a university campus as an enclosure that includes extensive activities within a larger setting (Rapoport, 2007).

Courtyard types and sustainability in traditional houses in the Mediterranean

The courtyard house is the most popular design related to the Mediterranean building tradition. It was first recognized in the Middle East in Egypt, specifically in the ancient excavated civilization in Kahun (Abass et al., 2016). It is the oldest residence and architectural form that exceeds various cultural limits.

The first reason behind constructing the courtyard space is to provide a safe, protected area from outside forces such as wild animals or humans. With time passing, the courtyard design hugely developed to be a solid design with logical, sustainable purposes, such as developing privacy and having more control over ventilation, humidity, natural sunlight, and aesthetic plant growth (Gupta and Joshi, 2021)—figure (1). Courtyard is considered a typological architectural component and an architecture schema used widely on Mediterranean shores. Courtyard traditional houses serve as a central open space surrounded by house rooms to offer adequate house security, privacy, and sheltering (Mezughi and Gabril, 2015). Moreover, this space design covered traditional house occupants' environmental and socio-familial demands considering visual privacy as the main feature in the Mediterranean courtyard design.

The courtyard is known as "Housh" in traditional Arab Mediterranean houses. Various types of courtyards are recognized based on region, area, and height, but generally, they are either square or rectangular.

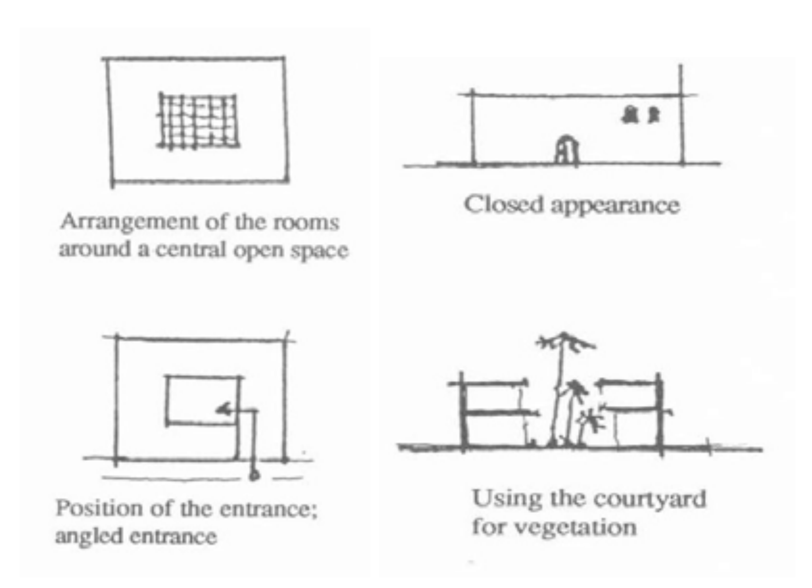


Figure: (1) Behsh, Basam (2017).

A courtyard house is a family house that includes several rooms, approximately three or four, occupied as a separate residential area for each family member.
Each room has various internal divisions that specify the functional activity in each space. Three main parts divide such a house: the central part's living area, usually divided, while the two ends often take shape by an arch or raised floor, generally connected to the living space area. These two ends of space often work as the bedroom's functionality role. The courtyard is the main entrance to the room, which guarantees the existence of adequate sustainable ventilation and daylight within the room. The rooms in the traditional courtyard houses are gathered orthogonally around the central courtyard space. The classic courtyard house design leaves the plot four angles free. These free spaces offer the home's essential services, such as storerooms and bathrooms. The kitchen can generally occur in the courtyard or one room of the courtyard house. The porch is an entrance and exit point from the house to the street, with a doorway to maintain the occupants' privacy. Figure: (2)

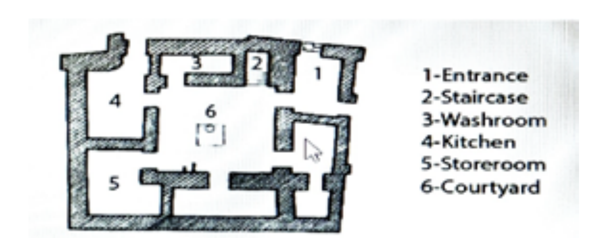


Figure: (2) Source Al-Dawoud, A. (2006*)*

In conclusion, traditional courtyard houses in the Mediterranean are both aesthetic and functional. Courtyards are the house's most active, secure, and private areas, managing the daily activities of family social life. Courtyard houses are considered residential properties where families can enjoy complete privacy and withdraw from society. (Boudjemaa, 2009).

Conclusions

In response to the changing demands of the occupant's different courtyard types Developing an efficient architectural house design. Courtyard is the oldest residence form, an architectural form widely used in the Mediterranean tradition. Courtyards have several long-term benefits in traditional house design. Including courtyards in the design of a home could provide several environmental, social-cultural, and formal benefits. A courtyard house is a family home with several rooms used for various sustainable purposes, such as gathering families and having social interactions, providing safety, and creating a secure area with natural, sustainable lighting and ventilation.

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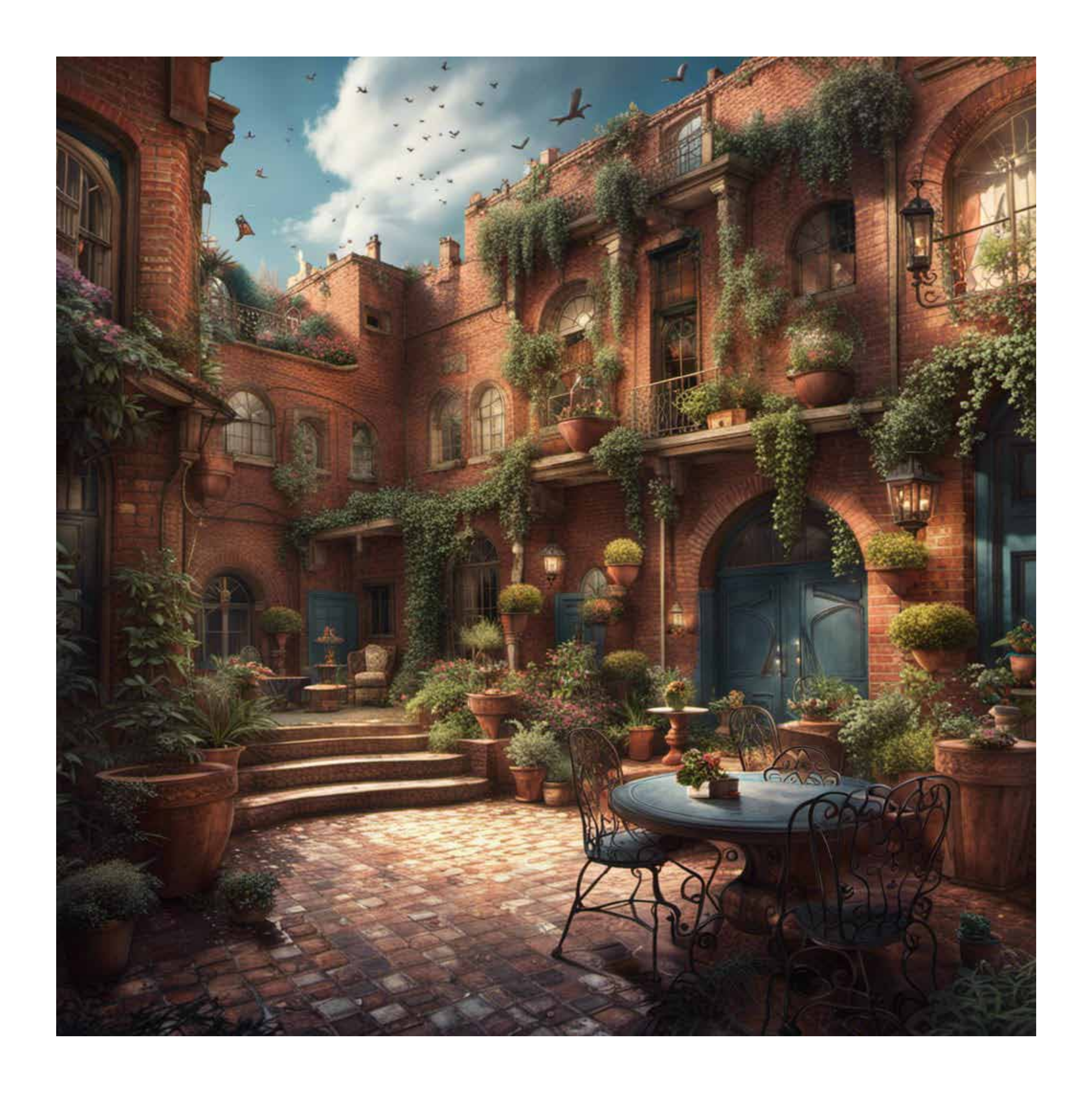
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by Night Cafe, Detailed Matte painting, housing, bricks and plaster

22

THE MEDITERRANEAN COURTYARD AS A SPACE FOR REGENERATION: FARM CULTURAL PARK

MARIACHIARA BONETTI

Abstract

The contemporary interpretation of the courtyard space allows a reinterpretation of the architectural vocabulary that characterizes many Mediterranean realities. It can be defined as a nucleus capable of forming the spatial arrangement and socio-cultural organization of an urban environment around a semantic significance, recognizable in its volumetric complexity and, at the same time, in its simplicity of everyday life. In the courtyard of the Seven Courtyards of Favara (Sicily) the concept of Genius Loci acquires new voice through Farm Cultural Park, a cultural workshop in which creativity, art, architecture and social innovation find expression in a community dimension able to concentrate and spread a new system of collective urban revitalization.

Keywords

Mediterranean courtyard, regeneration, architecture, Farm Cultural Park, social innovation.

Introduction

The courtyard, understood as a hybrid architectural space, has always played a complex role, rich in social implications, aesthetics, cultural recognition and connection of the urban fabric. Its physical reality can be defined as a nucleus capable of forming the spatial arrangement and socio-cultural organization of an urban environment around a semantic meaning, recognizable in its volumetric complexity and, at the same time, in its simplicity of everyday life. Materiality and immateriality, typical of Mediterranean architecture, find in the courtyard a language and a balance capable of creating a public-private space with multiple meanings, revealing the identity of a place and strengthening social cohesion. The Mediterranean courtyard, understood as a partially enclosed open space, surrounded by a building or a wall and open to the sky, and more specifically the succession of courtyards read as a composition of different spaces of interrelationship, preserves a typically Mediterranean trait, of Arab heritage (AA.VV. 1968/2005): the enclosed courtyard within which family life took place, at the same time semi-public, hidden from outside eyes, protected in privacy by walls that have an almost domestic connotation in an external projection of the inhabited interior. The enclosed courtyard has walls that are impassable to the eye, still protecting

the quiet retreat of one or more families and is characterized by a common space in which customs, traditions and languages, that express cultural models, have consolidated over time.

Favara: urban history and spatiality of Mediterranean memory

Favara, located six kilometers from the Valley of the Temples in Agrigento, belongs to a territorial and landscape system that represents one of the largest archaeological complexes in the Mediterranean (Unesco site since 1997). Ancient findings dating back to the Sicani period (2400-1900 BC) testify to the first presences in the area. These were followed by Greek domination and the Arab presence to which we owe the name of *fawwãra*, which means spring. The formation of the urban layout can be traced back to the construction of the hunting lodge of Frederick II of Swabia (about 1270) around which the first residential area developed. A typically medieval urban system was generated near the castle, with an irregular layout and conforming to the orography of the area: the village of Favara (Prescia, Trapani 2016). It is this settlement system, and its subsequent developments (Chiaramontane, French and Spanish presences), which has led to the contemporary urban reality of Favara. After a substantial late nineteenth-century development, due to the mining industry and flourishing agriculture, and which allowed the growth of bourgeois architecture made up of prestigious buildings, the center underwent a gradual abandonment starting from the 1960s. The historic center, many areas of which are in a state of abandonment and decay both from an architectural and social point of view, still allows us to recognize the shape of the urban courtyard today, a public interior that characterizes various Sicilian towns. Here we find the *Seven Courtyards*, small, interconnected courtyards, made up of the alternation of those nineteenth-century bourgeoisie palaces, interspersed with gardens of Arab origin, set in a semi-private dimension full of suggestions. This urban panorama, which constitutes the planning area capable of stimulating a vision based on the recovery of the architectural peculiarities of the Favarese tradition and its cultural promotion, is the background on which the guidelines of a new urbanity have been traced. It has its roots in a language of ancient Mediterranean memory - according to the concept of *Longue durée* enunciated by Fernand Braudel which tells of a social structure that strongly resists stress - capable of expressing a new idea of resilience and recovery, engaging in a dialogue of social promotion.
The semantic reading of the spatiality of Sicilian courtyards allows us to understand the links between urban space, private space, society and interpersonal ties by introducing a transitional level of space architecture as a primary system for the establishment of a cultural model (Lana, Mondino 2015):

> All of man's activity as *homo sapiens* is linked to models of classification of space, to the division of this into «own» and «others» and to the translation of the various social,

religious, political, parental, etc. ties into the language of spatial relationships (J. Lotman).

The courtyard of the *Seven Courtyards*: Farm Cultural Park

The historic center of Favara, in a process of uninterrupted degradation, that started in the sixties, has witnessed a progressive and irreversible state of abandonment until the umpteenth collapse caused the death of the Bellavia sisters. This was the triggering event that pushed the notary Bartoli and the lawyer Saieva, already art collectors, to embark on a path of redemption through the creation of a territorial regeneration laboratory. To the preventive demolition program, indicated by the Favara administration, a rebirth project is proposed here thanks to the recovery of the existing one. Thus, the Farm Cultural Park project was born in March 2010 through the recovery of the first two buildings in the heart of the *Seven Courtyards*. Arriving in the Bentivegna courtyard, one goes along a narrow alley, a reminder of the Arab-like character of this portion of Favara, which allows access to the central courtyard, headquarters of the FARM (Palumbo 2016):

> Several shapeless and bundled building units have been made into a continuous and organic space thanks to the demolition of the curtain walls that separated them, thus allowing spaces to be freed up, now crossed by free and non-hierarchical visitor routes and open to natural light with large windows.

FARM stands as a cultural workshop in which creativity, art, architecture and social innovation find expression in a community dimension capable of concentrating and spreading a new collective urban revitalization system thanks to the involvement of local realities and international intellectual excellence.

> The main aesthetic references are the logic of reuse and Pop art; here art also enhances the face of the ruins, which are no longer simulacrum of decay, but human works of a changing landscape (Occhipinti 2017)

FARM and the *Sette Cortili* courtyard are two symbiotic realities with blurred boundaries. The life of the courtyard and the initiatives inside the inhabited spaces merge in a continuous dialogue between inside and outside. The center of this cultural district is based on the direct reference to the experience of the Kasbah and the Arab matrix of the courtyard by grafting a continuous work of redevelopment of the buildings that shape and create the space itself. The once dilapidated buildings become exhibition galleries in continuity with the installations and the urban art of the courtyards which maintain that intimacy typical of the Mediterranean courtyard but which, at the same time, are a projection towards the outside, an element of connection, communication and invitation to share. The inspiring theory of this initiative can be

attributed to Charles Landry, a British author who theorized and disseminated the concept of «creative city» during the 1980s. The system proposed by Landry is based on the use of art and culture to trigger new processes of change and regeneration of cities based on the specificities that characterize them (Landry 2012).
The Bentivegna courtyard, generating element on which the *Seven Courtyards* of Arab origin are grafted, is the generating nucleus of this process and which openly refers to the spaces of Marrakech and simultaneously to the Palais de Tokyo in Paris and the Camden Town market, places of culture, entertainment, food and globality. From here a lymphatic flow, made of art and nourishment for a town no longer able to survive its own degradation, radiates into the streets and arteries of Favara. FARM today represents a vital element for urban physiology, it is in fact capable of feeding the mechanisms necessary for regeneration, activating a sort of chlorophyll photosynthesis which allows for the absorption and transformation of waste, abandonment, detritus (which, in order not to leave from the metaphor it can be defined as the carbon dioxide produced by a social and urban system in trouble) and transform it into oxygen for the city, for the local and international community. The iconographic use of urban works of art contrasts chromatically and semantically with the old Favara, using white backgrounds and bright colours, lettering as blow-ups of a communication made aloud, as if to recall the inhabitants and visitors to a sort of market in where art becomes popular because it is shared but rises to a declaration of intent for a better future. The courtyards are transformed into moments of pause necessary for becoming aware of what is happening at a rapid pace, a space for meditation and sharing but also a laboratory in which energies multiply thanks also to their conformation.



1: The Courtyard of the *Seven Courtyards*: morphology of the generating core. (Graphic elaboration by the author)

This is how artists from all over the world come to FARM, live and reside in these environments and become, for a short period, citizens of this new city, living side by side with those who were born here and have witnessed, and participated, in the transformation of these courtyards through the integration of different forms of life.

Conclusions

The reading of the «geographical world» recreated within the courtyard and its interrelations with spaces, open and closed, public and private, silent or deafening, allows us to create a vision made up of the past, present and future. This interpretation of the temporal dimension, in a pictorial declination attributable to the hybrid and multiple reading that for richness and fervor recalls Pablo Picasso's Mediterranean Landscape[1], really refers to the experience of the Marrakesh market and the Palais de Tokyo in Paris: architectural space, works of art and people work symbiotically for the creation of a new environment and, at the same time, ancient and rooted in the history of the place. The *genius loci* (Norberg-Schultz 1986) is renewed in a relationship between history and latency (Baldazzini 2017):

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[1] Pablo Picasso «Paesaggio mediterraneo» (1952), Albertina, Vienna.

> On the one hand history understood as what has manifested itself, on the other history as the cradle of unexpressed potentialities that open up to alternative futures. The latency that inhabits the real, past and present, becomes a source for change.

The architecture of this urban element is transformed into a utopia of rebirth and a reality of social action: by interpreting the paradigm of *human-centered design* and grafting it directly onto the architectural memory of the *kasbah* typology, an abandoned historic center is transformed into a large tourist and cultural attraction. Andrea Bartoli states: «what was considered a country of mafia, unauthorized use and abandonment has become a city of young people, a city of art, a small world capital of urban regeneration». The characterizing element of FARM lies in the ability to give voice to the ancient *nume tutelare*[2] of the place, allowing it to express itself in a contemporary language capable of giving meaning and balance to the necessary phase of breaking and distancing from the immobilistic concept that has characterized the life of those who was born and raised in these places. The *courtyard of courtyards* is presented as a synthesis between past and present capable of balancing creative impulse and the need for living.

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[2] Genius loci: loc. lat.; owner «spiritello (genius) of the place (loci) », with reference to the religions of the ancient world which associated places and natural landscapes with the presence of a minor deity who constituted their tutelary deity. Available to Garzanti linguistica https://www.garzantilinguistica.it/ricerca/?q=genius%20loci.

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Sitografia

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by Night Cafe, Detailed Matte painting, housing, bricks and plaster

23

THE COURT IN MEDITERRANEAN ARCHITECTURE: THE INTERNALITY OF THE EXTERNAL

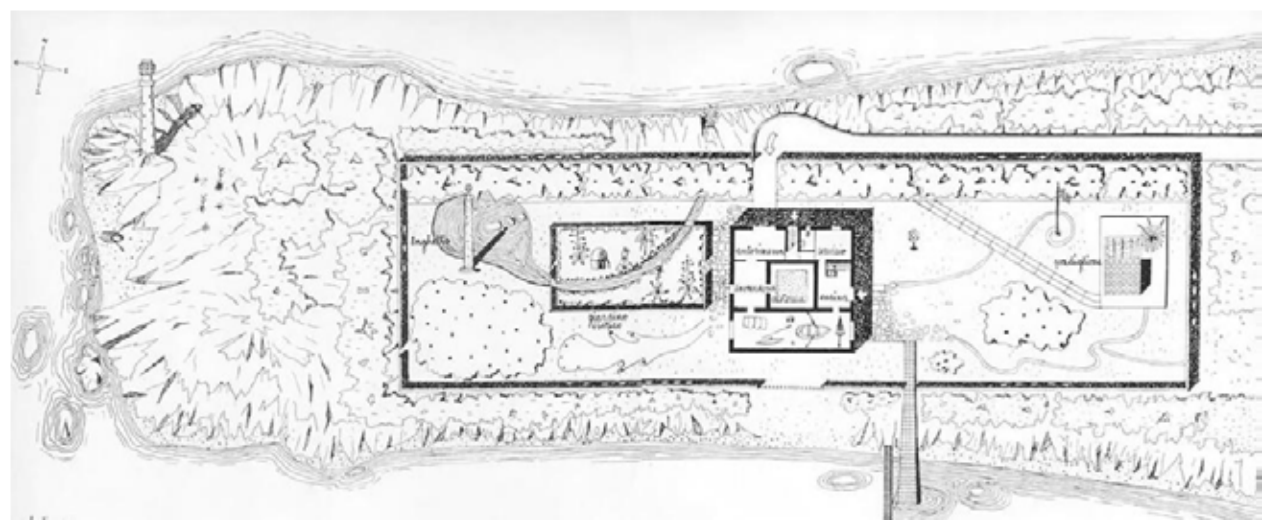
MAURIZIO ODDO

Keywords

Courtyard, mediterranean architecture, houses, local architecture, gardens

Introduction

Mediterranean architecture, still today, can be considered a sampling of extraordinary cases if it is true, as it is, that living in the court coincides with living in an open but enclosed space – a true introversion of contemporary space. Without neglecting the natural garden extension that brings us back to the primordial character of architectural gestures: court, from the Latin. cōrs cōrtis (cohors -tis) «court, land adjacent to the villa», similar to hortus «garden», understood as a garden or hortus conclusus. The court, therefore, is to be intended as a delimitation and as an active "void", around which the space of the house is formed and originates, guaranteeing, at the same time, a high degree of privacy in the sunlight: the delimitation - writes Heidegger - is not what a thing stops on but, as the Greeks recognized, it is what from which a thing begins its presence. If the delimitations of a built space are represented by the floor, the walls and the ceiling, the open but delimited space of the court allows to compare the architectural space with the borders of the open space of the landscape which present the same structure and consist of terrain, horizon and sky; a direct structural analogy which is of fundamental importance in the relationship between the artificial place and the natural place.



The court is a complex spatial unit, made up of walls or volumes, articulated with each other, which identify this archetypal figure: it is closed, on all sides, towards the outside - excluding the direct relationship with the sky - with the character of the intimate and interior space of the house. The closed form, on the other hand, shows the internal structure of the house and communicates welcome and hospitality, whether it is the shaded courtyard of an Islamic house or the atrium of an Italic dwelling. This is the clear demonstration of how works of architecture tend to constitute themselves as an orderly microcosm whose character makes them capable of welcoming man in a space that transcends the limits of the traditional mere shelter: from the medieval cloisters, to the Villas of Palladio, up to the most recent works, the space reveals a confident openness to nature and its elements, contrary to the idea of a building intended exclusively to defend man from the hostility of the environment. From a conceptual point of view, the void of the court becomes the main scenario of human action, which arises from the articulation and complementary between the parts of the space of the house, as well as configuring itself as a filter space between public and private. The elementary gesture of the appropriation of space through the tracing of a protective fence generates the courtyard type of housing which is at the basis of the formation of the fabrics of most ancient cities.
The open space of the court is a constant theme of architecture: the Garden of Eden, a mythical closed garden, surrounded by walls, represents the first green city, where to place the first man and the first woman. In the existing external world, however, the house of man is missing, which will appear, as a remedy, only after the "fault" and fear, under the great canopy of trees when the external world identified itself with the house of man and not no diaphragm existed between the first inhabitant of Eden and his world. The Sumerian pictogram, the first example of history, together with the eternal parenthesis of the myth, is composed of a triangular, crenelated wall, inside which a tree is planted. Through a word/image, it expresses the concept of *guan* - garden/closure - dating back to the period from the end of the 4th century B.C. at the beginning of the 2nd millennium B.C. The enclosed space is nothing more than a fragment of built nature, used by architecture as an essential element of composition

capable of expressing, concretely and symbolically, the same common roots of civilizations. Roots that have appeared on the shores of the Mediterranean, through masonry cells that wrap around a central courtyard, the essence of the original house that will give life to much architecture based on the notion of an enclosure.
The Hellenic house distributes and regulates, through the courtyard, the air and the density of light, intended for domestic environments, unlike the monumental architectures built in Greece, on the elementary plot of shelter and shade for man: from the dim light of the peristyle to the bright light of the open space in the center. As happens between the text and the words that compose it - syntax - the parts that make up the courtyard houses, although identified by the shapes and materials, owe their identity to the spatial relationships that are established between each of them, as well as to the visual symbiosis between the internal space and the external space of the garden, variously composed and related to the dialectic that is established between the different episodes of the construction.
A spatial succession that, through the architecture of the Renaissance house and the Baroque house, will reach the nineteenth century, up to the twentieth century and beyond, where the clear autonomy of the court becomes indisputable. A complex succession of closed spaces and open spaces that bring us back to the most elementary sequences sought in some important examples of Roman architecture and in some Renaissance buildings. Interesting models can be identified among the buildings of Villa Adriana, extraordinary summa of imperial eclecticism: the portico of the Pecile, the square hall of the Philosophers and the circular one of the Maritime Theater, can be taken as a model for a sequence of open and closed volumes, based on the difference in geometric shapes between the elements of the group. In fact, the three volumes - in the natural order of path, porch, courtyard - show their different geometric figures which, along the dominant longitudinal axis, alternate open spaces with closed spaces, identifying, among these, the courtyards that refer to the outside world of nature.

The architectural project always maintains a link with the natural dimension. Therefore, a natural history of architecture is needed such as the one recently published by Philippe Rahm1 who managed to highlight the natural, physical, biological or climatic causes that have influenced the course of the history of architecture.

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[1]See P. Rahm, Alexandre Labasse (by), Histoire naturelle de l'architecture. Comment le climat, les épidémies et l'énergie ont façonné la ville et les bâtiments, Pavillon de L'arsenal, Paris 2020

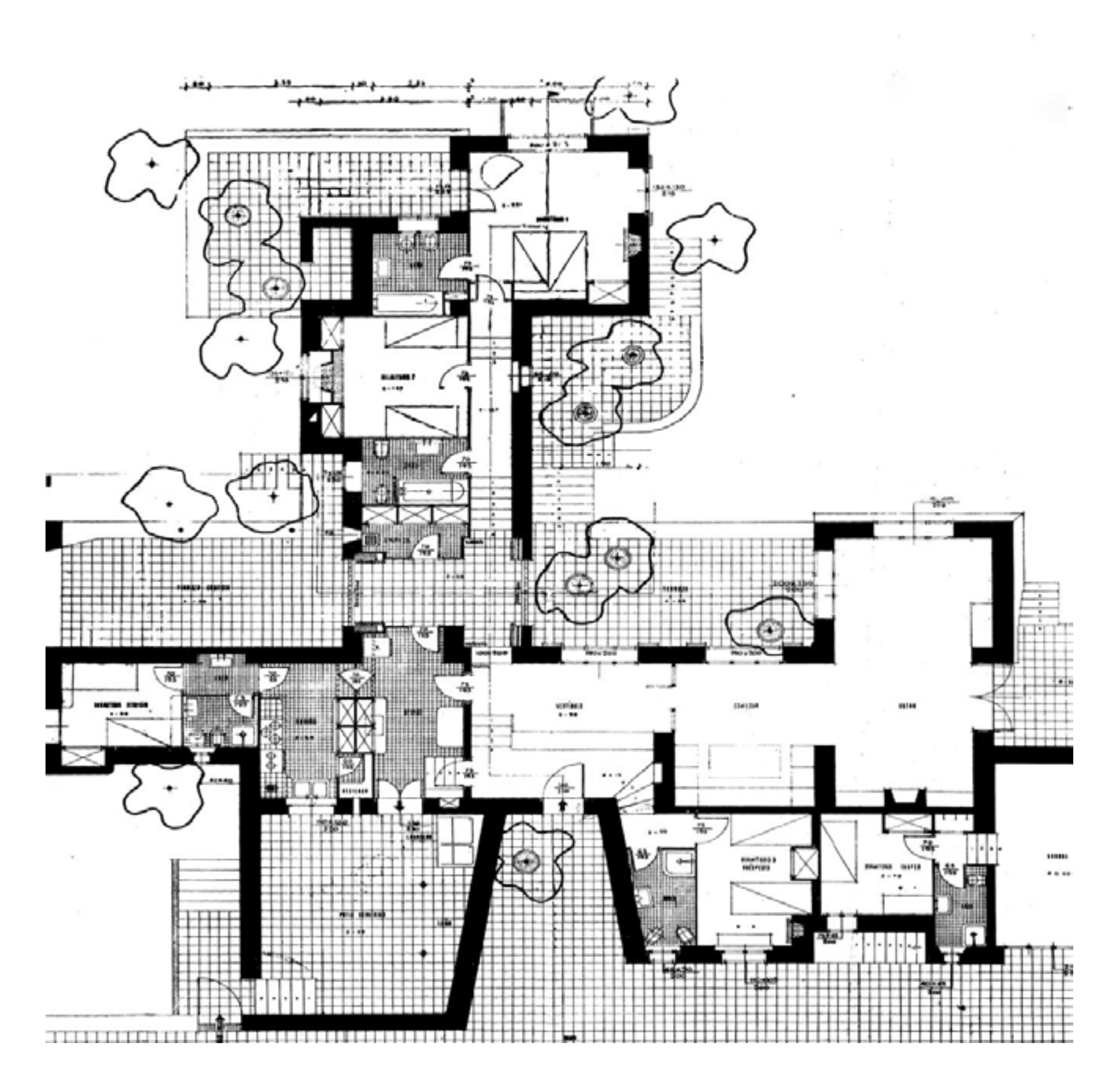


In Homer's mythical geography, for example, in some of the scenes of Ulysses' long circumnavigation towards Ithaca, set in idyllic worlds, in wild nature rich in woods, space is described by leveraging the monumentality of the architectures described. Central between these fabulous worlds and the human world remains the land of the Phaeacians; an unidentified geographical location, ruled by King Alcinous. More precisely, one of the most detailed accounts is devoted to the description of the palace of the Phaeacians whose central courtyard is planted with eternally productive vegetation: *In the patio is a large orchard, surrounded by a high fence with its four sides. There some trees grow robust, leafy: there are pear trees, pomegranates, apple trees with splendid apples; there are fig trees, which produce sweet figs and olive trees. At the edge of the orchard, the flower beds produce a thousand species of plants surrounded by greenery all year round. There are two fountains inside: one spreads its jets through the garden and the other under the patio carries the water to the tall building.2* A description that confirms the strength of that void, configured over the centuries as a recurring, universal and permanent compositional value, especially in the context of the Mediterranean architectural culture we are dealing with. Settings which, on the one hand, recall the systems of the Roman Domus such as the House of the Garden of Hercules or the House of the Faun; on the other they lead us to the architecture of the following centuries.
In the Renaissance, for example, it is possible to identify sequences obtained with extreme skill by distinguishing between volumes that maintain their geometric shapes like the courtyards of palaces and villas. Among others, the

[2]See Odissea, VII 112-132.

courtyard of the hanging garden within the ducal palace of Urbino comes to mind on which the most representative spaces of the architectural complex converge; a sort of ante litteram logarithmic scale as a rare example of modulation which adds to the internal space the external one which manages to maintain the autonomy recalled by the court, considered as a clear perspective inversion which favors the contemplation of the surrounding landscape. In the Renaissance, the court extremely amplified the ideal space sought inside, exhaling its shape and modulating its natural light. One of the main lines of research, based on central plants, whose symmetrical spaces highlighted the dialectic of pure relationships, will influence compositional abstraction, characteristic of the 20th century where the spatial sequences are obtained, in addition to volumetric dimensions, with the transparency allowed from materials produced by modern industry. Think of Mies Van Der Rohe who, for a long time, elaborating various variations, directed his research to the study of the patio house.

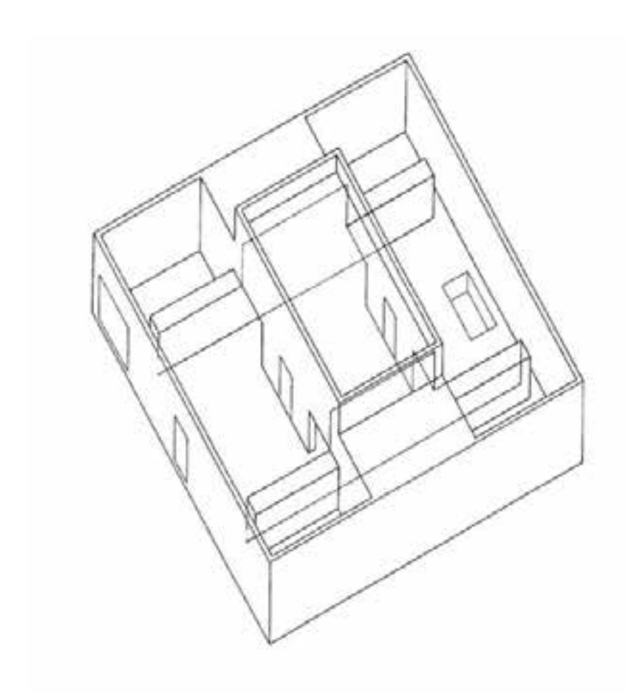
Walls animated by large glazed openings that reinforce the continuity and the internal-external relationship, up to the hoped-for transparency, openly pursued by the architects, with frequent references to the anonymous works of the past: I believe that Arab architecture - underlines Giancarlo De Carlo- has remained imprinted in my imagination: the concretions of spaces that interpenetrate, the non-difference of substance between open and closed, between built space and inhabited open space.3 Spaces united by a more general meaning of domesticity, linked to the inner dimension that they manage to restore, so that an open place, "for everyone" - such as a square - can be compared to a real open room, a perimeter open sky: Spaces united by a more general meaning of domesticity, linked to the inner dimension that they manage to restore, so that an open place, "for everyone" - such as a square - can be compared to a real open room, a perimeter open sky: the act of thinning out the forest paves the way for the construction of the world, transforming a complex and seemingly chaotic space into a place of the possible.



correspondences are destined to increase by establishing, for example, new balances between concave and convex, between full and empty, between inside and outside. This has happened at least since the 1920s, when attention was paid to a renewed interpretation of the domestic space. In the achieved universality, the courtyard house model is destined to become a primary source of inspiration for architectural works such as, among the many cases, Bernard Rudofsky's House, organized around a large patio and built in Frigiliana (Frigiliana, Málaga 1969-1971) or the Casa
Gilardi by Luis Barragán (Tacubaya, Mexico 1975-1978).4 The latter marked by nostalgia as an

[3]G. De Carlo, Conversazioni su architettura e libertà, Elèuthera, Milano 2014, pag. 39

awareness of the past but elevated, also through nature, to poetic power. The house, built on a narrow and long lot, develops around the courtyard, characterized by a Jacaranda tree, the original fulcrum for the design of a simple but rigorous plan





The space of the courtyard often becomes the space of contemplation: an open space, a garden – an extreme synthesis of beauty, a super-place – mineral and airy at the same time as evidence of the intangible dimension of atmospheric effects. Lights and shadows, the reflections of colours, smells and even the sound of the wind. On closer inspection, the characteristics that define the chambres ouvertes as a place on a human scale emerge, both for the contained perimeter and for the attempt to define and decline the archetype: the court enclosed in the heart of the house becomes the large open room, a connection point between the building and an introspection of the landscape towards the city and its history which intentionally, in turn, establish a silent dialogue with the new architecture.

On the other hand, it is man who is the only one able to operate intentionally, involving conscience and creativity which, in the correct consideration of environmental issues,

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[4]*The bibliography on Barragan's work is boundless. Among the numerous texts, we highlight: A. Riggen Martínez (edited by), Luis Barragán (1902-1988), Electa, Milan 2004; L. Barragán, Escritos y conversaciones, Madrid, El Croquis, 2000; E. Ambasz, The Architecture of Luis Barragan, New York, Museum of Modern Art, 1984*

will have to demonstrate once again that every rational choice bears witness to one of the possible forms of intelligence: why not go back to imagining and building architectures according to these parameters?
An invitation to imagine a new spatiality capable of reconquering, even before the various functions it is called upon to perform, those primitive conditions of a harmonious entity of the past.

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[1]See P. Rahm, Alexandre Labasse (by), Histoire naturelle de l'architecture. Comment le climat, les épidémies et l'énergie ont façonné la ville et les bâtiments, Pavillon de L'arsenal, Paris 2020

[2]See Odissea, VII 112-132.

[3]G. De Carlo, Conversazioni su architettura e libertà, Elèuthera, Milano 2014, pag. 39

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24

COURTYARD PALAZZO MATTEI GIOVE

MAYS ABU TALEB

Abstract

Palazzo Mattei di Giove, is one of the most important courtyards, was built in the in the early 17th century and belonged to the aristocratic Mattei family, located in a small courtyard in the storical center of Rome, Italy. It was a home of the Caravaggio, one of the most important painters in Rome. Today the place is still in use, which is occupied by offices of cultural institutions. The courtyard is open to anyone who is willing to take a peek, Entering from Via Michelangelo Caetani or Via Funari, walking through the main doors to an astonishing central courtyard.

Keywords

Palazzo, courtyard, historical center, Caravaggio, Historical Center.

Introduction

This palace dates back to the modern and contemporary age, has been designed by Carlo Maderno, at the beginning of the XVIIth century for Asdrubale Mattei, its façade has a Florentine appeal, whereas the courtyard is a tribute to Ancient Rome, lots of reliefs were developed. The palace was named Palazzo Mattei di Giove; the Mattei who owned it had a fief at Giove in Umbria. It was the last home of Costantino Corvisieri, the first president of the Roman Society of Homeland History.

The brick and travertine building are spread over three floors with double entrances through two portals. The windows on the ground floor and on the main floor have architraves, the others are squared, and two corniced stringcourses divide the two orders of the elevation. A cornice with heraldic motifs of the Mattei (chessboard) and of the Gonzagas (eagle) and a roof terrace with loggia crown it.

In the first courtyard there is a loggia with two orders, while the side walls are covered with ancient bas-reliefs, also inserted in stucco frames. The antiquities still present in the building today were part of one of the richest and most valuable private collections of ancient marbles existing in Rome, also including the part located

in the Villa Celimontana owned by Ciriaco, brother of Asdrubale Mattei, now in the Vatican Museums. The courtyard was redesigned to establish connection between the ancient Roman emperors and the Holy Roman ones. Eight modern busts representing ancient Roman emperors were placed on the walls of the courtyard and eight busts representing emperors of the House of Habsburg on the balustrade of the gallery. Eight medallions with modern reliefs depicting Byzantine emperors on the walls of the courtyard established a symbolic link between the two groups of busts.
In the courtyard there are some Roman statues depicting male characters. The grand staircase is also adorned with ancient sculptures: the staircase has four flights and is decorated with stuccos by Donato Mazzi (1606-1611) and Roman sarcophagi, among the most beautiful in the Mattei collections (the front of the Sarcophagus of Mars and Rhea Silvia and the Mattei Sarcophagus I). The staircase leads to the loggia overlooking the first courtyard, also decorated with Roman fragments and a series of colossal busts of emperors (also from the modern era), dating back to the 16th-17th century.
On the first floor of the building, now home to the Centro Studi Americani, there are rooms frescoed by various artists: Francesco Albani (Jacob's Dream), Domenichino (Jacob and Rachel at the Fountain), Pomarancio (Stories of Joseph the Jew), Giovanni Lanfranco (Joseph and Putiphar's wife, 1615), Pietro Paolo Bonzi, Pietro da Cortona and Paul Bril (in the gallery, Stories of Solomon and the Queen of Sheba), Antonio Carracci, Gaspare Celio, Cristoforo Greppi, Francesco Nappi, Giacomo Triga, the Grappelli. In the second courtyard-garden there is a fountain adorned with a grotesque mask which pours water into a sarcophagus carved with symmetrical lion protomes.

The Mattei were collectors of their antiquities, which they placed in their villa. Some sarcophagi in the 2nd century AD were used to decorate the walls of the palace, as paintings. Their fonts didn’t have references to death, but they were covered by relief representing a historical or mythological event.

Graphic specifications of the document



Photo by HEN-Magonza on flickr | In the streets near Piazza Mattei there are several Mattei palaces, of which the double hall and the courtyards of the Palazzo Mattei di Giove are particularly worth seeing. They are richly decorated with statues and ancient reliefs, some of which come from the Theater of Balbus.

Conclusion

The courtyard highlights an essential principle concerning the relationship between place and space, urban density and building form. Courtyards can also be gathering places and, above all, provide greater contact with nature while providing light and ventilation to home interiors. To properly design these spaces and create a functional relationship between the inside of a house and its courtyard, it is important to use appropriate doors and openings. The main principle of the courtyard is to connect the in and the out of the building, which will have a variety of biodiversity, that make a strong connection with the surrounding nature.

« Rome – the city of visible history, where the past of a whole hemisphere seemoving in funeral procession with strange ancestral images and trophies gathered from afar». -- George Eliot, pen name of Mary Ann Evans, an English poet.

Graphs and tables

Table 1. Important Names through the History of Courtyard Palazzo Mattei di Giove

Years	Friars	Status
1606 -1611	Donato Mazzi	Decoration with stuccos
1615	Francesco Albani	Jacob's Dream
	Domenichino	Jacob and Rachel at the Fountain
	Pomarancio	Stories of Joseph the Jew
	Giovanni Lanfranco	Joseph and Putiphar's wife
1576 -1636	Pietro Paolo Bonzi	in the gallery
1596 - 1597	Pietro da Cortona	Stories of Solomon
1554 - 1626	Paul Bril	the Queen of Sheba
1583 - 1618	Antonio Carracci	
1571 - 1640	Gaspare Celio	
17th Century	Cristoforo Greppi	
1565 - 1630s	Francesco Nappi	Italian painter
1674 - 1746	Giacomo Triga	Italian painter
1908	the Grappelli	

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https://www.spotahome.com/blog/x-quotes-about-rome-that-will-make-you/



by Night Cafe, Detailed Matte painting, housing, bricks and plaster, sitting furniture in a courtyard, landscape planters, nostalgic, maximalism

THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

25

THE ROLE OF THE COURTYARD IN SHAPING THE SYSTEM OF DAMASCENE FABRIC

MHD ZIWAR AL NOURI, NAIROOZ KHATEEB

Abstract

The concept of courtyard is considered to be an integral part of the Damascene organic fabric and system that is formed and adapted in accordance with these different scales and aspects: Social, cultural, economical, environmental and infrastructural. This chapter will shortly discuss how the courtyard plays a vital role in these aspects that impact and shape the identity of the old city of Damascus and its society.

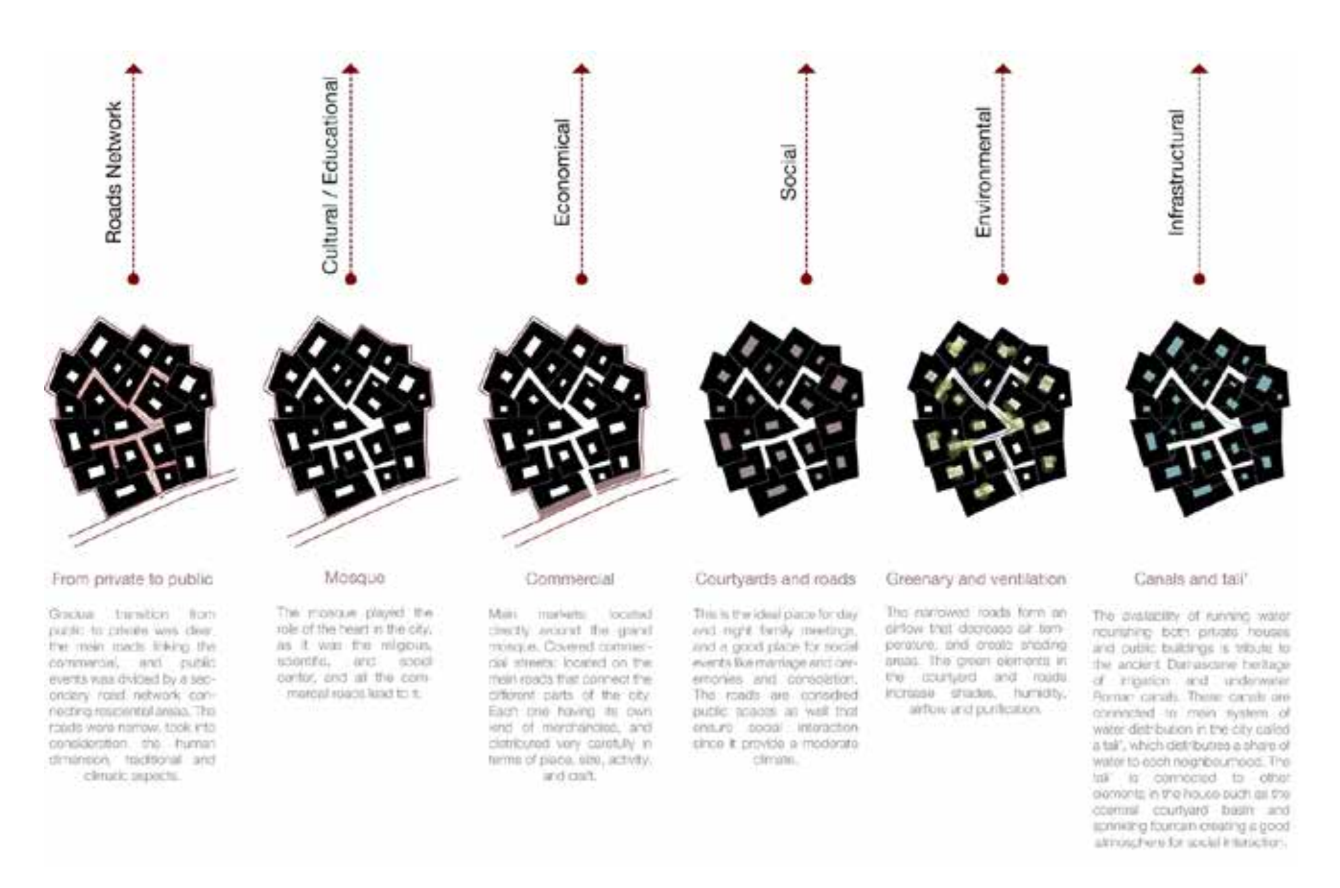
Keywords
Damascene fabric, courtyard, social, economical, environmental, cultural, infrastructural.

The Urban fabric of the city consists of different aspects and scales. These various aspects, layouts and characteristics of the different structures at the base of the formation of the Damascus fabric have determined its apparent complexity. By a structural reading of its formative and aggregative features, this complexity is subdivided into homogeneous areas and shapes. One important element of these shapes is the courtyard. The concept of courtyard is considered to be an integral part of this Damascene organic fabric and system that is formed and adapted in accordance with these different scales and aspects: Social, cultural, economical, environmental and infrastructural. This chapter will shortly discuss how the courtyard plays a vital role in these aspects that impact and shape the identity of the old city of Damascus and its society.

Social: The courtyard has been always considered to be an effective element to enrich and empower the social aspect in the Damascene community in both the scale of the unit/house or the urban one. On a small scale, it's the ideal place for day and night family meetings, and a good place for social events like marriage, ceremonies and consolation, while on the large scale the courtyard acts as the most public point that can be translated whether into public buildings like mosques, Madrasa or as an open spaces that ensure socializing and different activities. These public courtyards are connected to a road network, ensuring a gradual transition from private places to the public ones. The main roads linking the commercial, and public events were divided by a secondary road network connecting residential areas to create a compact fabric. The roads were narrow, taking into consideration the human dimension, traditional and climatic aspects. These roads gradually open up to the main courtyard that acts as the heart of the city.

3

The role of the courtyard in shaping the system of Damascene fabric

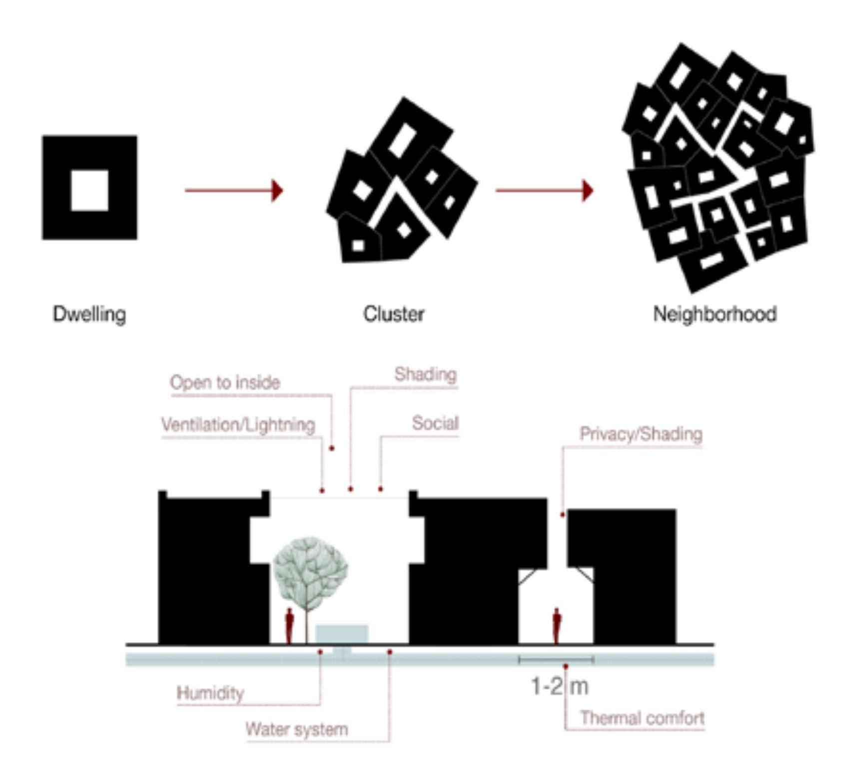


1: The courtyard system plays a vital role in shaping the Damascene fabric with different scales and aspects: Social, cultural, economical, environmental and infrastructural. Image by the author, from personal research: Damascus behind the scenes-Inforrmality as a new mechanism for post war reconstruction.

Cultural: As mentioned before, the main courtyard could be translated into public buildings on a large scale like a mosque, that plays the role of the heart in the old city of Damascus, as it is the religious, scientific, and social center, and all the commercial roads lead to it, creating a socioeconomic network and an interconnected urban fabric that reflects the culture and traditions of the people.

Economical: Main markets were located directly around the grand mosque that acts as the main courtyard of the old city. This courtyard is connected to covered commercial streets that are located on the main roads and connect different parts of the city. Each one has its own kind of merchandise, and distributed very carefully in terms of place, size, activity, and craft. These commercial roads act as the veins that feed the heart of the city “The courtyard” and magnify its importance as an effective commercial point.

Environmental: On the small scale of the unit, the courtyard is considered to be the lung of the dwelling, it has been shown that this courtyard, despite its openness towards the sky, it achieves complete protection and isolation from the outside climate and its thermal influence and from air and wind, sound, noise and pollution, because the outside air, which carries heat and dust, hovers over the courtyard without leaking into the depth. This is because there are no outlets that can help move this air current and attract it to the outside. Moreover, the courtyard, having performed the function of the lung, helped to enjoy it through the open iwan on it, and through the wall decorations surrounding it, then through the ornamental plants, such as lemon trees, citron, orange, magnolia, jasmine and roses, and through the water ponds into which water flows through taps and fountains, it helps humidify dry air. On tha large scale, the narrowed roads that are connected to the main courtyard form an airflow that decrease air temperature, and create shading areas. The green elements in the courtyard and roads increase shades, humidity, airflow and purification. Despite the density and the compactness of the old city, there is still a place for plants to grow. It shows the connection between the residents and the nature that continues to grow as the city grows, and reflects the relationship between man and his environment.



1: On the small scale of the unit, the courtyard is considered to be the lung of the dwelling, helped to enjoy it through the open iwan on it, and through the wall decorations surrounding it, then through the ornamental plants. This unit shapes a large compact system that creates the fabric of the city on a large scale. Image by the author, from personal research: Damascus behind the scenes-Inforrmality as a new mechanism for post war reconstruction.

Infrastructural: In the courtyard exists a remarkable element that is considered to be the visible element behind a whole invisible water distribution system: The fountain. The availability of running water nourishing both private houses and public buildings is tribute to the ancient Damascene heritage of irrigation and underwater Roman canals. These canals are connected to the main system of water distribution in the city called a tali', which distributes a share of water to each neighborhood. The tali' is connected to other elements in the house such as the central courtyard basin and sprinkling fountain creating a good atmosphere for social interaction.

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26

THE HISTORICAL CULTURE OF THE EMERGENCE OF THE PATIO IN THE DAMASCENE TRADITIONAL DWELLING

MHD YASSAR, OQBA FAKOUSH

Abstract:
The historical culture of the emergence of the patio in the Damascene traditional dwelling
The Damascene traditional dwelling is one of the components of the World Heritage List because it contains a cultural accumulation in the development of the local dwelling and its acculturation with the civilizations that ruled Damascus throughout history, in addition to the mixing of cultural and social backgrounds stemming from the multiple religions and morals that the Damascene society enjoyed throughout history. The design of this dwelling is considered one of the pioneering models in its origin, development and spread due to its distinctive and unique architectural characteristics in its design that combine aesthetic, environmental and social desires at the same time.
Despite the spread of many forms of the inner courtyard in the dwellings of most ancient eastern civilizations, by analyzing the historical path of the emergence of the Damascus neighborhoods with the influence of the civilizations coming to Damascus, the Greek and Roman influence can be monitored for the organization of the city, and this influence appears clearly by comparing what Vitruvius wrote. around the courtyard in the dwelling and between the Damascene courtyard; This indicates that the emergence of the inner courtyard must be Greek and Roman, which developed later and was influenced by the Arab-Islamic culture that preserved the general environmental concept, and enriched the space with aesthetic and conservative additions.

keywords:

City of Damascus, Courtyard, Traditional house, Dwelling, Historical city ,

Introduction

1- The Damascene traditional house represents a distinctive architectural model around the world, because it contains distinctive and unique architectural characteristics that combine aesthetic, environmental and social features at the same time. The social feature stems from the multiple religions and cultural values that Damascene society experienced throughout history. Although the history of the majority of existing Damascene house models dates back to the seventeenth and eighteenth centuries; it is a depiction of the residential cultures of the diverse civilizations the city has witnessed throughout history.

The traditional Damascene houses are comparable in terms of the external appearance, and their height does not exceed two floors. They are distinguished by space and generosity in the interior claddings.

These houses are weaved together creating small avenues in between making the topography of a traditional oriental city, which gained the recognition of the World Heritage List.

2- The emergence and development of the courtyard in the traditional Damascene dwelling:
Ancient historical references did not mention the original inhabitants of the urban area within the city of Damascus, but rather mentioned them inhabiting its rural surroundings. The rationale for this is that the indigenous people did not inhabit the city because they mainly worked in agriculture and needed to reside near their land. Most of the indigenous people engaged in agriculture, animal husbandry, and other related activities. They distributed outside the city in populated centers located in the agricultural suburban area Al-Ghouta. Damascus was inhabited only by clerics, military leaders, rulers, and wealthy elites belonging to other civilizations that ruled Damascus.
Despite the similarity of building techniques between the dwelling outside the city and the dwelling in the city due to its simplicity and dependence on stone, wood, mud, adobe and lime for both models. However, the designs and specifications of the rural dwellings differed from the organized and connected urban city dwellings. The rural dwelling in the vicinity of Damascus is dependent in its design on an external front yard oriented towards the east and south, and it includes an area designated for animals and granaries, and the dwelling is surrounded by agricultural land that provides the necessary privacy. In contrast to the design of the urban city dwelling which relied on the inner courtyard to secure privacy and achieve environmental considerations in an urban center.
Although some studies indicated that the models of the inner courtyard were known since 3500 BC in Mesopotamia and the Levant, the presence of the courtyard in the dwelling spread in many civilizations and places in the world, and was not limited to one civilization. It is predicted that the inner courtyard of the Damascene traditional dwelling resulted from one of the following two possibilities explained below, or can be a joint result of both with local cultural and environmental influence:
The first possibility: the gradual development of the idea of a rural dwelling block that is environmentally oriented east and south, open to a private eastern or southern space and surrounded by the peripheral space formed from agricultural land. This led to an urban dwelling overlooking an inner courtyard open to the sky with closed sides overlooking the spaces of the dwelling's functions with an appropriate environmental consideration, and in response to the different occupations of city inhabitants compared to rural ones who primarily worked in agriculture.

The second possibility: by borrowing different housing models from the many civilizations. Since Damascus was founded and developed by the delegations of the communities of foreign civilizations that ruled Damascus, the neighborhoods of the city of Damascus were created and then organized according to the
civilizations that ruled it. Therefore, there was the Aramean neighborhood, the Greek neighborhood, the Roman neighborhood and the Nabataean neighborhood.

3- The historical culture of the Damascene traditional dwelling:
Archaeological analysis indicated that Damascus was flourishing during the eighth millennium BC, and that it had a degree of knowledge, ideology, culture, and art. Life in Damascus developed over the fifth and fourth millennium BC. Stability prevailed during the third millennium BC, and it spread more throughout the region and increased in size and development. Damascus appeared as a great city in the history of the Arameans, and then Damascus became the capital of one of the most important and

powerful Aramaic kingdoms. After a volatile era of different rulers; the Assyrians, Babylonians, and Persians, the Greeks arrived, so that Damascus would live a new civilized period, and the Seleucids would establish their own neighborhood according to the principles of
Hippodamus of Miles in planning cities recommended by Aristotle. According to an organized plan of perpendicular streets, there will be two adjacent quarters, in the east the Greek quarter circling its public square, and in the west the ancient Aramaic quarter to the south of the sacred temple.
Sauvage considers that this neighborhood was a new foundation in Damascus. The establishment of cities in the Seleucid state was aimed at constructing the military settlement, not an urban city, and the officers were granted a plot of land to build a private residence. Then, Damascus took a new chess layout and a distinct form of buildings that adopted the Greek style in construction and engineering, and its residences were built around the public square. Thus, the neighborhood with the temple took the form of a miniature Greek city alongside the existing Aramaic neighborhood.

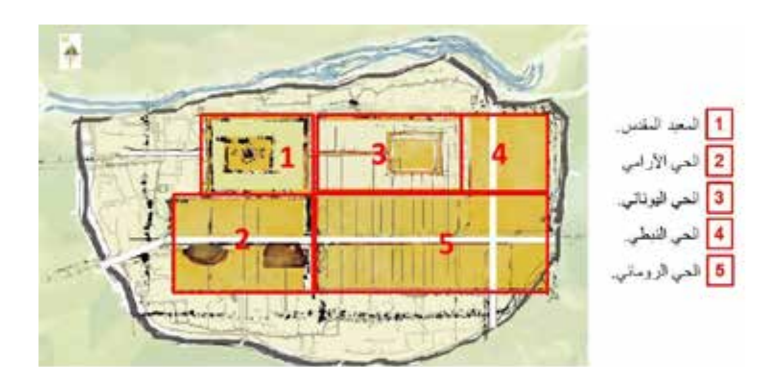


Figure No. (1) Formation of neighborhoods in the city of Damascus.

As the Seleucids and the Ptolemies became weaker, Damascus was ruled by the Nabateans, who came from southern Syria, and made it their capital and established another neighborhood adjacent to the eastern side of the Greek neighborhood.

After, Damascus fell into the hands of the Romans, and with their realization of the importance of Damascus' location in the region, they granted it its defensive, urban, architectural and water requirements in a manner befitting its prestige and distinguished location. One of their most important urban and architectural projects in Damascus was building a new residential neighborhood for the Roman community on the same principles of the Greek neighborhood and adjacent to it. The city completes its chess-planning by surrounding it with a wall that includes all its components: the Holy Temple, the Aramean Quarter, the Greek Quarter, the Nabataean Quarter, and the Roman Quarter.
At the end of the fourth century AD, Damascus became a part of the map of the Byzantine state, and thanks to the Church of John the Baptist, it occupies a parallel and competing position with Constantinople in the Christian world.

As a result of the weakness of the Byzantine Empire and the accompanying internal crises, the Persians and the Ghassanids, took turns on the side of the Byzantines in ruling Damascus.
After that period, the Muslim Arabs entered the city and resided in the homes vacated by the Byzantines, and made it their capital, and it became one of the most important cities in the world.
Damascus remains in the arena of history due to its importance and position, and the Mamluks classified it as their second city after Cairo, and they consider it the center representing the Levant. Damascus was subjected to burning and destruction by multiple Mongol invasions, and it did not regain any recognition until the last part of the rule of the Ottoman sultans affected by the European renaissance, which ruled it for approximately 400 years.

4- Civilizational approaches to the emergence of the courtyard:
The previous historical presentation indicates direct significant influences on the architecture and urbanization of Damascus, which accumulated locally to produce the housing models currently found in the old city. There are many vocabulary and architectural details confirming the influence of the components of the dwellings in Damascus by the various civilizations that ruled Damascus.
The formation of the idea of the central inner courtyard in the local Damascene dwelling and its environmental uses can be traced back to the Greek and Roman periods. The largest external influence of the city's establishment and organization was during the reign of these two empires. Due to the authoritarianism of generalizing the styles and models of Greek and Roman architecture over all the areas it ruled, it is possible to confirm the use of residential models that Vitruvius detailed in his second book of his article “The Ten Books on Architecture.”
According to the explanation of Vitruvius, he states that the existence of the inner courtyard of the dwelling in all models is in two forms: square and rectangular, each side of which takes an explicit geographical orientation. He also emphasizes on the need for house designs to be compatible with the nature of the country, the diversity of the climate, environmental elements and other different local characteristics. He states: "If we want the designs of private homes to be right, we have to pay attention to the climate and the environment of the areas in which they will be built on."
Vitruvius also indicates that the houses are completely covered with roofs and are of warm orientation; And it must be exposed in the southern countries that suffer from heat. He explains the architectural styles of the open courtyard in five different styles of the "cavaedium" of the Roman House. They are named according to the model of their construction details.
He also refers to the possibility of making design modifications according to environmental elements, stating: “Thus, we can modify through art what nature would spoil if left alone; and in other situations we also have to make adjustments that suit the position of the sun and its effects on the climate .".
Vitruvius also specifies a place that shows the open space in the middle of the dwelling in a central way, which is accessed from the entrance of the dwelling after passing through a closed hall directly next to the door, and it is noted that all rooms of the dwelling open, through a portico, to the heavenly space in functional harmony commensurate with the functional spaces' need for sunbathing and ventilation. , taking into account the presence of a water element in the middle of the space.

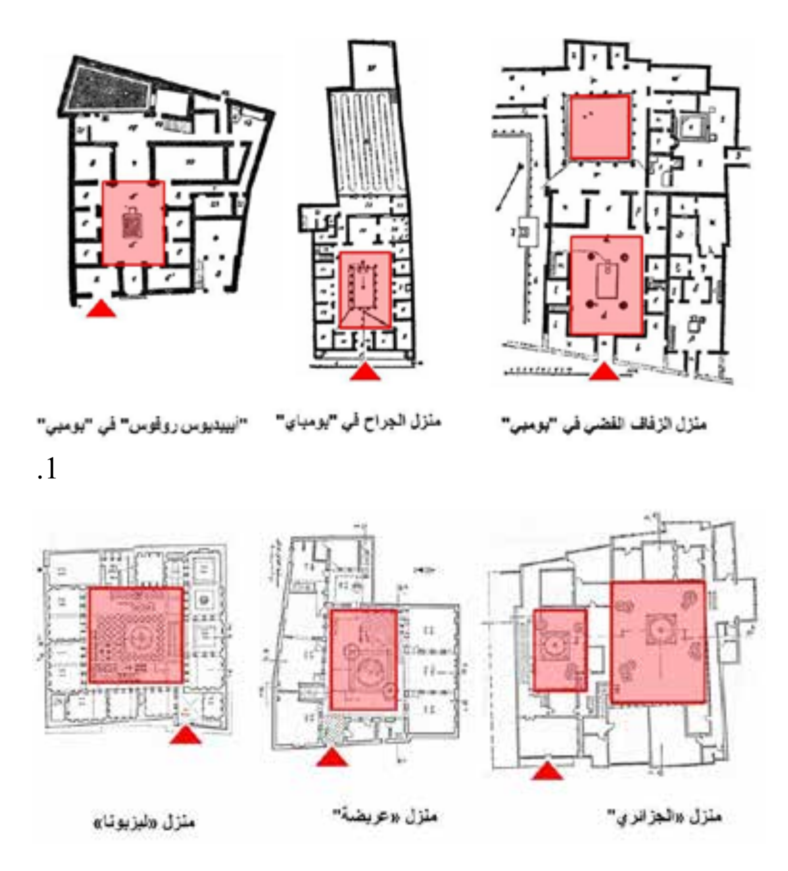


Figure (3) Models of the courtyard in the traditional Damascene dwellings.

This corresponds to the courtyard in the traditional Damascene dwelling, which relied in its design on the central placement in a square or rectangular shape. It is entered from the outer entrance of the house through a paved corridor or hall (vestibule); All the functional spaces of the house are opened to the patio, in order to achieve privacy
necessary and appropriate cultural environment and ensure ventilation and insulation, in addition to the presence of the central water component.
The courtyard of Vitruvius also corresponds to the Damascene courtyard, with conditions that place the functional spaces of the overlooking dwelling
On the yard, and with the presence of geometric ratios governing the area of the yard in relation to the area of the dwelling's land.

The model of Vitruvius's courtyard differs from the Damascene courtyard in the absence of a covered porch in Damascus, and this may be due to the lack of rain. Additionally, the absence of Roman column styles may be due to the later Islamic cultural influences on the Roman period, and to the difficulty in providing the craftsmen and building materials necessary for these styles.
The subjugation of both the city and the traditional rural dwelling to the influences of Islamic culture which appears through the abolition of public spaces in the city, and their replacement in the spaces of mosques and inner courtyards of dwellings. As well as the reformulation of design parts of the dwelling in accordance with the principles, values and teachings of the Islamic religion, along with additions by the Arab expatriates carried from their own residential culture.
With the succession and diversity of the Islamic rulings that came to Damascus, the interest in the inner courtyard increased to achieve the required privacy and appropriate cultural environmental conditions, and it was clearly shown that the way was paved for the economic status of the inhabitant through the size of the courtyard and the decoration of its cladding.
It is important to mention that the Damascene courtyard, which was developed on the Greek and Roman model, was re-exported with the Islamic conquests to North Africa, all the way to the dwellings of Andalusia in Western Europe. Thus, the inner courtyard rises expressively to be one of the most important

features of the oriental city of the Mediterranean, and one of the pillars of the Islamic architecture philosophy particularly for that of the residential architecture in ancient cities.

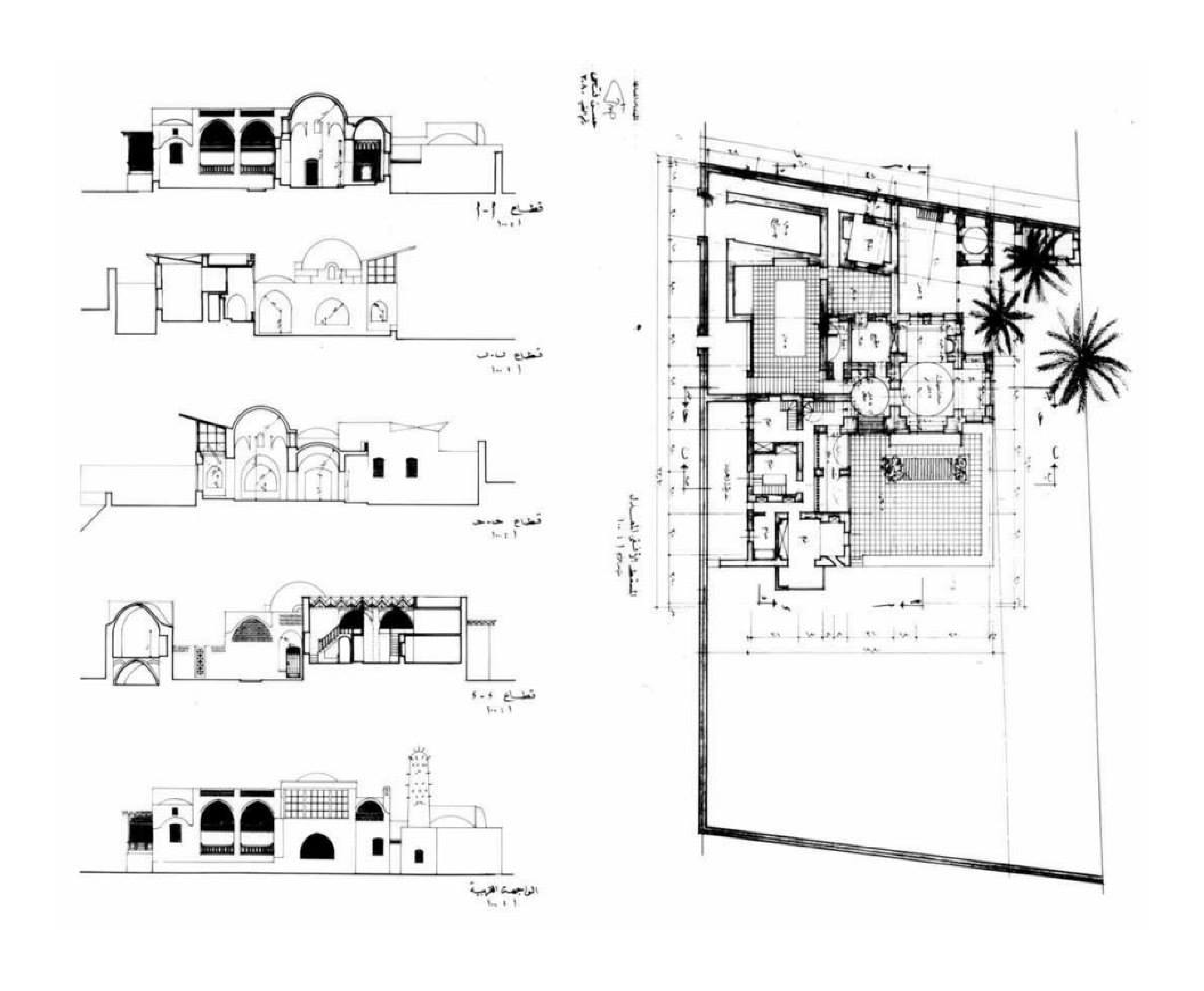
Conclusion: The historical culture of the emergence of the courtyard in the Damascene traditional dwelling:

The Damascene traditional dwelling is recognized by the World Heritage List because it is developed through an accumulation of cultural, historical and environmental local influences. It is also the product of the diverse civilizations that ruled Damascus throughout history, in addition to being a result of a mixture of these cultural and social backgrounds stemming from the multiple religions and values that the Damascene society absorbed throughout history. The design of this dwelling is considered one of the pioneering models in its origin, development and reach due to its distinctive and unique architectural characteristics in its design that combine aesthetic, environmental and social virtues at the same time. Despite the spread of many forms of the inner courtyard in the dwellings of most ancient orient civilizations, analyzing the historical path of the emergence of the Damascus neighborhoods with the influence of the civilizations coming to Damascus, the Greek and Roman influence can be seen in the organization of the city, and this influence appears clearly by reflecting on Vitruvius' writing on the courtyard in the dwelling and between the Damascene courtyard. This indicates that the emergence of the inner courtyard must be Greek and Roman, which developed later and was influenced by the Arab-Islamic culture that preserved the general environmental concept and enriched the space with aesthetic and conservative features.

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Fu'ad Riyadh Residence, by Hasan Fathy

27

SUSTAINABILITY IN TRADITIONAL ARAB ARCHITECTURE: THE INNER COURTYARD AS A CASESTUDY

MOHANNAD TARRAD

Abstract

The research discusses traditional Arab architecture as an environmentally sustainable architecture, through the architectural thought emanating from the culture of people and the component of traditional architecture. In addition to the architectural elements used in it that developed this trend. The research reviews the impact of climate and environmental and social factors on the architectural form in traditional architecture. It also mentions the most important ideas and architectural elements that form traditional architecture, which crystallized sustainable thought in it and highlights the inner courtyard as a case study.

Keywords

traditional Arab architecture, sustainable architecture, courtyard.

Introduction

The concept of sustainability is not considered a new term, but rather a concept embodied in traditional architecture in various Arab countries and in an interconnected manner with the surrounding environment through the optimal exploitation of the natural resources of the environment. Also, other elements were used to protect people from harsh conditions and to ensure appropriate climatic comfort to ensure a healthy social and healthy life. The most important element used by the Arabs in their architecture is the inner courtyard, which provided thermal comfort suitable for the user . The presence of some architectural elements helped in the success of the courtyard in the traditional Arab house, such as the (iwan), (shakhsheikha), (mashrabiya), and the wind catcher. It made the inner courtyard play an important role in the design of traditional Arab houses, and not only that, the inner courtyard was a suitable space for the conservative Arab community. which created this closed semi-public space, away from the curious looks from the outside, with interactive sessions between neighbors and friends, and worked to sustain these sittings for a long period of time.

Search goal:

The research aims to introduce traditional Arab architecture and the inner courtyard used as an environmental element and its role in maintaining sustainability, by clarifying the most important ideas and architectural elements that were used in the inner courtyard design.

Research Methodology:

Due to its nature, the research took several approaches, beginning with the inductive and analytical approaches to the principles and ideas on which traditional Arab architecture was based. Then followed the descriptive approach to practical applications that show sustainable ideas and elements in traditional architecture. For the desired purpose, reference was made to various sources that support the research from different sciences, such as urban, architectural, historical, and environmental sources.

The relationship between architecture and the environment:

Architecture is the art of building that serves man's comfort and provides him with privacy. it is what shelters man and his activity in the spiritual and material spheres in general, whether he is an individual or a group. As for the environment, it is the surrounding conditions that affect growth and life. It is a group of external conditions and factors in which living organisms live and affect the vital processes they perform.

The architectural and urban style is affected by the surrounding environment in terms of climatic, social, cultural, and economic conditions, and the climate is one of the most important factors according to which the shape, height and interdependence of blocks adapt to form the architectural space, as the architectural output has always been a mirror that reflects the environmental requirements, whether in its simple, modest or complex architecture. Hence, diversity was found in architectural forms according to the regions in which they are located, with some common treatments among them, such as interior courtyards, differentiated blocks, and various architectural elements. backing away from studying these conditions and paying attention to the form alone or modern architectural trends that arise in environments different from the Arab environment without re-processing them may make us face a big problem in their ineffectiveness and therefore their inability to use in the long term. This problem has been confirmed in the prohibition that was applied in most Arab countries, during the Covid-19 period, people got bored of their closed homes and began to think of solutions to communicate with the outer space (Tarrad.2020).

Sustainability in traditional architecture:

The term sustainability is an inclusive term because it is related to the development, natural resources, and in particular the manner of human interaction with the environment. The concept of sustainability has existed since ancient times, and therefore our ancestors did not use the term sustainability as an expression of their way of living and how to provide sources of livelihood and the way they build, but rather lived the concept and applied it spontaneously and automatically. So, sustainability is a comprehensive term linked to the required development of human society.

It is the preservation of physical and vital systems, and communication is achieved by affirming society's responsibility towards the surrounding environment by empowering the community to make design decisions from the beginning of the early stages of design. The interaction of the Arab community with the surrounding environment and the optimal exploitation of natural resources was part of ensuring their survival on this earth adapting to difficult conditions such as harsh climate, scarcity of some resources, and sustainability. For them it was spontaneous and automatic, the spontaneity of the ancestors' dealings with the environment was not random or instinctive, but was based on a deep legacy of experiences and learning through the principle of "trial and error" supported by creative thought And a window of insight, recent studies have proven its depth and usefulness over hundreds of years. The elements of sustainable design are integrated with the design thought of traditional architecture, using local building materials and simple techniques that are studied, but they stem from the local environment, where the solutions were effective and interactive with the environment and the available resources. The success of traditional architecture is due to it being a logical response to the available resources in the environment and external factors, meaning that traditional architecture has been able to blend the dimensions of social sustainability with environmental requirements to form sustainable architecture compatible with the environment(Tarrad.2011).

One of the important features that must be highlighted is the proximity of the dwellings of the rich and the poor in one residential neighborhood within the neighborhood unit without class or social distinction in the form of the external housing unit. Architecture and luxury, this is what Islamic architecture called for in general, as Islamic architecture was known for the architecture of the interior more than the exterior, in order to achieve a kind of social justice. It was reflected in the most important features of traditional Arab architecture, which is the unity of appearance and the difference in essence.

Principles of sustainability in the design of traditional buildings through the inner courtyard:

Traditional Arab architecture was able to take advantage of the sun's rays in a scientific manner to provide protection for humans and living beings from high temperatures. it was done by directing the building and choosing orientation in traditional architecture for considerations of sunlight falling more than subject to the movement of wind through the inner courtyard. which achieves the greatest amount of protection Benefiting from the sun's rays in a deliberate manner according to the angles of incidence of the sun in order to suit the four seasons and thus achieve internal thermal stability in the building. The shape of the building is also distinguished by the composite blocks projecting shadows, and for this reason, the abundance of shadows is noticed in the house with the inner courtyard, especially if there are parts that rise to more than one floor. buildings with uneven ceilings take a greater amount of shadows, because their curved surfaces, such as the domes and vaults that are not fully exposed to sunlight during daylight hours (Lechner.2014).

As for building materials, traditional architecture preferred the use of thermally insulating building materials such as mud, bricks, and stone of all kinds. The inner courtyard has a clear role in introducing sunlight, entering air, and providing the interior view. while providing some architectural elements that helped make the concept of the courtyard a success, such as the air cloak, (iwan), and the (mashrabiya). these traditional architectural elements that were made of weather-resistant wood gave a distinctive aesthetic view, especially for openings such as windows and doors. Also, architectural elements that used to control the passage of light, adjust the airflow and temperatures, increase the humidity in the air stream, and provide privacy.

The inner courtyard with its surrounding elements such as (iwans), skylights and other architectural elements is considered one of the best methods that man dealt with in maintaining his thermal comfort. the juxtaposition of these elements constitutes one of the strongest aspects of supporting the sustainability of traditional construction, as they were able to provide an internal space open to the top, which serves as The lung that feeds the house units with the necessary lighting and ventilation. The patio is considered one of traditional architecture's most important architectural elements. It was the best solution to many environmental and social problems. It is one of the spaces that work to overcome the fluctuations of the climate, as it reduces the intensity of the sun's rays in the summer days as it kept the warmth in the winter days.



Figu1 shows the inner courtyard of Al-Suhaimi House, Cairo, which is one of the most famous traditional Arab houses ,(source is the web).

Traditional architecture using the inner courtyard is compatible with the community's culture and needs:

Traditional architecture is more appropriate for people's culture and social relations through the formation of courtyards, public spaces and linking them with the integrated local fabric. It consists of elements and artistic treatments that are more appropriate to the local Arab environment because it was established based on climatic considerations in addition to the social, cultural, and religious requirements. Traditional Arab architecture was generally known for its simplicity and spontaneity, and its direct harmony with special needs and environmental conditions. Urban growth was not based on an urban model or a pre-planned plan, but rather developed gradually according to the extension and expansion of families within the framework of the principles of religion and the local people’s culture, such as: reviving the land, kindness, no harm, and other customs that controlled the relations of society, neighborhood, and building (Alhusban,Al-Shorman. 2011).

In the Islamic era, the concept of the inner courtyard in the design of housing and the design of cities in general was very clear in order to meet the requirements of the environment in Arab cities and meet the achievement of privacy, which was one of the most important things recommended by the Islamic religion. Through field surveys and the study of archival materials and literary sources, it becomes possible to explain the architectural planning and typical features of the Arab or Middle Eastern dwellings in the Mediterranean region. The use of the inner courtyard as an architectural element is widespread in the Mediterranean region, and the inner courtyard was the most prominent feature (element) in the typical, architectural and artistic development of the dwelling, specifically in the Mediterranean basin, which is the basis of formation in traditional architecture.The traditional house, with the presence of the inner courtyard, constitutes a special place in the architecture of the dwelling in the Arab region. The three main types of traditional Arab houses with an inner courtyard can be categorized:

1) A house in the form of a closed square or rectangle, and there is a yard inside it, which is the simplest and most common.

2) Neighboring houses forming a void or as a result of this adjoining (a yard). This type is most common among relatives that are mostly brothers and cousins.

3) A house of the combined type that combines the first and second styles.

The dwellings in traditional Arab architecture were often built with an inner courtyard in the middle of a square or rectangle in shape. then all buildings open to an open courtyard, as is the case in rural dwellings in Jordan and Palestine. sometimes a fountain mediates in the middle, such as the Damascene dwelling, and this dwelling usually consists of one or more floors. The living rooms were on the ground floor and on the first floor are the bedrooms. Sometimes the outer courtyard is covered with a layer of ornate marble to give an aesthetic view (Al Abidin.2004)The courtyard in the traditional dwelling in most parts of the Arab region is a place for suitable social communication, especially for women. The formation of traditional dwellings in the Mediterranean region came not only under the influence of natural, climatic, and religious factors, but also under the influence of ethnicity, roots, and current innovations in the architecture and art of each region. Craftsmen played an important role in highlighting the inner courtyard, where each of the authentications excelled by using internal architectural details that represented a distinguishing mark in the design of the courtyard in that country. The Damascene, Qudsi, Baghdadi, and Egyptian courtyards came in. Each of these courtyards has its own specificity in design, specifically in interior design, visitor movement, and a place for rest and recreation (Bahauddin.2015).

Various materials were used in construction and cladding. As for the rich people, expensive tiles or marble of high quality and beautiful decorations were used that reflected the beauty of traditional Arab architecture. As well as the construction of the walls varied in material and color and was carried out at a high technical level of craftsmanship. Some architectural elements were used such as arches above the thresholds of doors and windows. There was a clear tradition style, transferring from the Middle Ages to the modern era. And the privacy of the architectural appearance of the inner courtyard was used through pointed arches on low pillars that increased its beauty. One of the features of the traditional house with an inner courtyard is that it has a room for guests in the form of a hall with windows always facing the main facade. Its entrance is from inside the courtyard through a door on a facade without windows, in order to increase privacy in the traditional Arab house (Jäger.2012).

Conclusion and results:

At the end of this research, we find that the research has reviewed the relationship between architecture, the environment and society. The architectural form is not just the product of the interaction of many factors, but also the most important is the environmental and social factors, which are creatively formulated by the architect. The research also presented the most important characteristics of sustainable traditional Arab construction by describing the inner courtyard in traditional Arab architecture. The research recommends increasing research that elevates the human mind to realizing all architectural and environmental concepts that are compatible with its instinct, material and physiological capabilities, and the possibility of reusing the inner courtyard in designs of architecture Arab houses and the Mediterranean basin. Moreover a study of the development of this important architectural element to keep pace with modern architecture and be part of it.

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28

TYPES OF TRADITIONAL COURTYARD HOUSES IN PALESTINE

MUMEN ABUARKUB, JIHAD AWAD

Abstract

Throughout history, the courtyard has played a crucial role in traditional architecture, offering an effective means of spatial organization for protecting and fostering intimacy in daily life. As a key housing typology, the traditional Palestinian courtyard house warrants further research to facilitate change in the rehabilitation process, from both local and international standpoints.

Keywords

Courtyard houses, traditional Palestinian architecture, rehabilitation process, housing typology

Introduction

The courtyard has been a crucial element in architectural design for thousands of years due to its ability to provide protection and intimacy. Today, the courtyard house has become increasingly popular in contemporary architecture as a common spatial component in residential and public buildings.

The Palestinian courtyard house is a unique Middle Eastern dwelling found in old parts of cities. Its size and plan depend on the owner's wealth and feature a completely enclosed living area. Ground-floor rooms are accessible from the courtyard, providing ventilation and lighting to internal rooms. Ancillary rooms can be entered through common doors, and staircases lead to upper floors. The upper floors feature an open courtyard created by a terrace.

1. The courtyard as a basic element in the Palestinian traditional houses

The yard is a frequent spatial element in the composition plan of various residential buildings or public buildings - today and throughout the construction history.[1]

Social and economic changes in late 19th-century Palestine led to modifications in courtyard house architecture due to factors such as a shift away from agriculture, division of extended family properties, and preference for nuclear families. Changes in Palestinian society were reflected in building construction,

[1] Brzovski, 2005: 110

with the use of modern materials such as iron and concrete, in both urban and rural areas of Palestine, according to Canaan.[2] British occupation significantly accelerated the “modernization” of building systems in Palestine and transformed the society from primarily agriculture-based and extended-family-centric to government job-driven, with expatriates' financial transformations.[3]

The courtyard house is the primary symbol of Palestinian traditional residential architecture due to its suitability for the climate.[4] The advantages of courtyard houses, such as providing a private space for protection, were influenced by social conditions.

Block contours are defined by their boundaries, and the block's texture represents the relationship between the house and the yard's basic elements. This reflects how land parcels are divided and built into cohesive units at a global level.[5]

From Morocco to India, houses typically feature yard entrances and separate reception/presentation rooms,[6] with regional differences arising from local traditions, economic/political factors, climate, building materials, and construction techniques.

The courtyard is the central feature of the house, around which all rooms are organized, enclosed by high walls, and typically owned by one or several related families. Non-related families own a separate yard.[7] Ground-floor windows face the courtyard, while upper-floor windows face the street. A fountain or pool may be found in the courtyard's center.[8]

The courtyard is a semi-private family enclave, marked by a grand arched entrance from the alley. Its layout illustrates its importance in Palestinian family life and the coordination of everyday tasks: women’s daily chores and interaction with female kin and neighbors. On summer evenings, it is a gathering spot for family members to discuss village affairs.[9]

Courtyard houses built close to each other led to the creation of public squares of different sizes, without pre-planned shapes, and linked by narrow passages. These squares served various purposes, including religious and social activities.

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[2] Hirschfeld, 1995: 109-111
[3] Al-Jubeh and Bshara, 2002: 30-43
[4] Gangler, 1993: 77
[5] Bakalcev, 1991: 44
[6] Gangler, 1993: 78
[7] Canaan, 1933: 40-41
[8] Dalman, 1964: 171
[9] Amiry and Tamari, 2003: 17

2. Courtyard in the village home

In the Palestinian village, clustered buildings were divided into residential neighborhoods separated by open and closed roads, each clustered around a shared courtyard. The courtyard typically included a semi-private main square with common facilities, as well as small courtyards for independent families. The family usually resided in a single room with a door open to the courtyard, the size of the house depended on the owner's wealth and the construction style.

The house and yard formed a single unit in Palestinian society, closed off from others due to customs, social traditions, and security concerns. The yards varied based on size, type of housing, fences, doors, and additional facilities. Researcher Omar Hamdan classified yards based on their social situation into three types: simple, complex, and compound.[10]

As villages became more common, modest houses began to feature a central courtyard with small rooms opened to the courtyard. The rooms lacked windows by modern standards, with latticework and shutters used to cover window openings.[11]

Houses were typically one-room with a vaulted entry and no openings except vents in older structures. Later houses had larger windows and thick one-meter walls to support the heavy stone slab roof. Extended family members lived in adjacent houses connected by courtyards, arranged based on their proximity to the family patriarch and privacy needs. Sons would establish their own units adjacent to their fathers' houses while still belonging to the same quarter.[12]

Houses often had whitewashed arched doorways, symbolizing purity and blessing. The door's wooden panels were painted blue or green suggesting prosperity and blessing, and simple carved motifs, along with the name of God, the prophet Muhammad, or a cross, were inscribed on the door's keystone.[13]

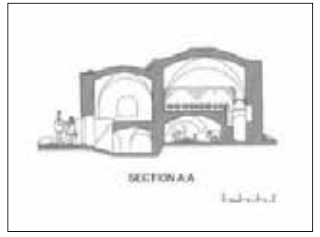
In country houses, the courtyard is typically located in front of the house, enclosed by a small wall. Multiple families use a shared yard with a summer terrace and awning for sleeping. The village houses have a lower level for domestic animals and a higher level for living. The flat roof is used for storing and drying crops. These features demonstrate the traditional way of living in Palestinian villages.[14]

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[10] Amiry and Tamari,1989: 26
[11] Awad, 1996: 90
[12] Amiry and Tamari,1989: 17
[13] Hamdan, 1996: 229-233
[14] Dalman, 1964: 57-60

House size is the primary differentiating factor among house types. Simple houses consist of a single room for living, sleeping, and cooking. Large houses have multiple rooms and an *Iwan*, a room open to the courtyard on one side. There is usually a reception room on the ground floor, and multiple yards for men, women, servants, and private activities.[15]





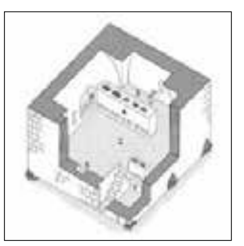


Figure 01: Lower and upper part, section, and axonometric view of house plans Abu Helweh in the village Ebwein near the city of Ramallah[16]

3. Courtyard houses in the city

Rich families' houses had urban architectural features, with decorative stonework above doors and cornices, crafted by skilled workers from big cities. These houses had two or three rooms and a large room on the second floor, called (*Ilya*), symbolizing family power and prestige. Luxurious houses had a vaulted hall or a central hall (*Liwan*), with bedrooms on both sides. There were also guest rooms and a toilet.[17] The house porch was narrow and curved, with a space for a doorman's stone seat *(Bauwab)* and sometimes a bedroom. City houses had multiple floors, with a balcony or terrace instead of a courtyard.[18]

The courtyard and terrace provided a sanctuary for intimate family life.

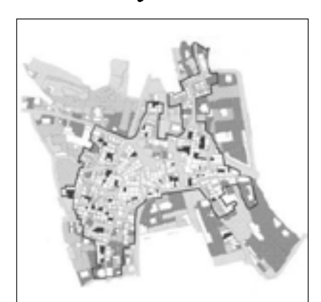




Figure 02: Courtyards in the old city of Ramallah[19] Nablus[20] and Acre[21]

15 Scholch, 1982: 48
16 Amiry and Tamari, 1989: 22
17 Dalman, 1964: 171
18 Canaan, 1933: 44
19 Issa and Judeh, 2014: 73
20 Awad, 1996: 70
21 Issa and Judeh, 2014: 73

4. Architectural typology of traditional Palestinian courtyard houses

Traditional Palestinian courtyard houses comprise various types of residential designs centered around open spaces. The typology of these houses is determined by the presence and layout of the courtyard, a special cultural and social value in Palestinian housing.[22]

The courtyard or terrace on the ground floor and upper floor respectively, are important in the lives of Palestinian families, providing their privacy. Rural houses in Palestine, resembling palaces and castles with large courtyards, possess an urban architectural style, similar to the houses of affluent city merchants, in terms of their size, design, volume, and details.[23]

Traditional Palestinian houses can be typologically divided into several groups[24], as houses with:

- Internal yard and rooms oriented towards it
- Internal yard and rooms oriented towards it and outwards
- Staircases located in the yard
- Front yard
- Backyard
- Internal and front yards
- Lateral yard

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[22] Abuarkub, 2000: 50
[23] Amiry, 2003: 39
[24] Amiry, 1996: 133

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29

THE IMPACT OF HEALING COURTYARDS: GARDENS IN HEALTHCARE FACILITIES

MUNA ALIBRAHIM, ASEEL RABABAH

Abstract

Healthcare facilities are very stressful environment. It produces anxiety, high blood pressure and increases heartbeat due to the high working hours and the nature of the environment as it is considering the main target for sick people. The need of a calm space connected with naturalfeature comes along with the users need for fresh air and lighting, which positively influence their well-being psychologically, physically, and socially. The concept of healing courtyards garden is a historically known approach that provides healthcare facilities users with these essential needs of natural ventilation, lighting, calming, rise up their well-being during their stay, and reducing the recovery time-span for patients by expose them to the nature. This paper will highlight the importance of the healing courtyards in healthcare facilities and its effective role in improving patients, staff, and visitors' well-being. The paper concluded the using healing courtyards as part of the healing process would psychologically, physically, and socially influence user's well-being.

Keywords

Healing courtyard garden,, healthcare facilities, physiological, physical & social well-being

Introduction

Courtyards are one of the most efficient sustainable solutions that were historically used in different kinds of buildings, including hospitals. The courtyard as a term presents a specific functional space that plays an important role in controlling in- out transition with a powerful environmental control that equalizes the use of modern mechanical systems. Courtyards in general can be presented by many layouts, the mostknown layout is a placement of outdoor space within the building functions (Taleghani and Tenpierik 2012). Its function in providing natural ventilation and lighting to inner spaces affects users physiological, physical, and social well-being. Some courtyards designs allow users to experience inner gardens concept, which in turn adds more value to courtyard considering it a place for people to meet up, set, and enjoying an interior safelandscape space. Courtyard layouts vary through time, though, the main characteristicsas an in-out private space are preserved (Taleghani and Tenpierik 2012).

Functionally, courtyards mostly located at the center of buildings connecting the surrounding spaces together, therefore it has a significant role in healing process (Rust 2010). In addition, courtyard has a contribution in social aspect (Meir 2000), as well as has a positive impact on peoples' well-being (Toone 2010), particularly in healthcare facilities. The concept of the healing courtyard appeared as a genuine component of healing environments in the medieval centuries, as nature and fresh breeze were main components of the healing process (Marcus 2007). Also, a theory appeared to control air-transferable infections in healing facilities during the 19th century, the theory suggested the creation of natural air refinements mechanism by using trees inside healthcare facilities, which significantly influenced the design of these buildings (Musa 2020).

Healthcare facilities are considered one of the most worldwide stressful environments as users usually experience a paradigm shift between an environment where they feel comfortable and a new alien environment where they will not be able to control their surroundings. This shift usually generates high stress levels, increase users heart beats and blood pressure, which in turn affects negatively on the physical and psychologicalhealth of users (Duzenli, Yilmaz, and Eren 2017).The need of courtyards in healthcarefacilities is extracted from its stressful atmosphere , there will always be a significant need for a well-designed outdoor space with a high connectivity with naturalelements in order to wipe away the negativity of such spaces (Duzenli, Yilmaz, and Eren 2017; Roger S. Ulrich et al. 1991).

It is historically suggested that the concept of using landscape in the healing process started in ancient Egypt, as the oldest known use of landscape in healing contexts occurred in Egypt when some physicians recommended a garden walk for rulers to reduce stress and for patients with mental troubles, afterwards, the beginning of the plants' medical power started to spread widely (Musa 2020). However, the high dependability on artificial lighting and ventilation, and the repeated calls for extra space in healthcare facilities have withdrawn the significant effects of healing courtyards in modern healthcare facilities as it considers the existence of healing courtyards a secondary need. This paper will shed a light on the importance of courtyards in healthcare facilities, their role in patients' psychological, physical, and social aspects which reduce the required healing period, and their effective role in permanent users' well-being and visitors' experience.

Impact of healing courtyard psychologically, physically, and socially

The psychological impact of having natural environmental features in healthcare facilities has been part of scholarly work for a long time, and many theories have been provided that show the importance of having healing courtyards. For example, the

psycho-evolution theories state that the healing power of nature is an unconscious process that mainly affects the emotionally-driven parts of the brain which are basically responsible for informing people to relax (Jiang 2014). Another theory by the horticultural school believes that interacting with the landscape as gardening usually brings enjoyment and fun, working in gardens recreates passion and adds excitement to people's lives, which consequently reflected in their well-being (Stigsdotter and Grahn 2002).

Plants joyful colors and smells enhances people’s enjoyment and comfortability (Kaplan and Kaplan 1982). It has been proven that using outdoor spaces with plants positively affect users as it increases their self-esteem, awareness, productivity, and place adaptivity. Also, patients in hospitals with healing courtyard gardens are psychologically healthier and their healing time-span is shorter (Duzenli, Yilmaz, and Eren 2017).

Complexity in healthcare facilities raise the need of creating healing environment. Healthcare facilities designs rise up anxiety, the feel of loneliness, and depression for users, which increases sleeplessness, nervousness, and problems with breaking the rules of the healthcare environments (Kaplan and Kaplan 1982). Healthcare facilities design is a complicated mission whether functionally or psychologically (Aripin 2006). Previous studies showed that the healthy environment in this type of buildings could be achieved when the design of the physicalenvironment is adequate such as having courtyard garden (Aripin 2006). Healthcare facilities patients, staff, and visitors usually spend long time in such place, which make the need for an open space with sunlight and greening is essential.Healing courtyard gardens considered as a design element and environmental feature that reducing stress and calming the mind of the different users through doingvarious activities within the courtyard such as reading, eating, sitting outside, walking,talking to each other, waiting for someone else, etc. Gathering at courtyards provides people with social support which improves their recovery and releasing stress (R. S. Ulrich 1999)

Elings (2006) definedthe healing gardens as the environment where people are physically and psychologically comfortable (Elings 2006). Also, Rust (2010), stated that adding a courtyard to healing environments completely influences the patients; inserting trees, water features, fresh breeze, a variety of colors, and natural sounds into such spaces has a considerable relationship in inducing the five senses of patients positively, which reduces their healing time-span (Almhafdy et al. 2013). Healing courtyard gardens usually has an impact on patients self-confident, self -respect through its power in helping patients to discover their inner abilities through meditation sets and reducing their stress in a safe environment (Duzenli, Yilmaz, and Eren 2017).

From another perspective, the relationship between people and healthcare facilities is usually connected to negative feelings due to the nature of healthcare facilities' function and their perspective on it as a place for urgent health statuses and needs, which usually makes this relation sometimes more closely to a phobia (Musa 2020). To reduce this,

an appropriate connection between the inner function and a well-designed outdoor space with attractive scenes of greening is a supportive design solution that decreases the negative vibes and bring more comfortability to the different users aside the patients.

The use of healing courtyards approved its positive efficiency on people psychologically by implementing the following criteria during its design: making it green, interesting and real, well-designed paths, making water features, defined and obvious entrance, and involving senses, using such elements provide a full experience for the different users by giving them a chance to use the whole five senses at once. Moreover, healing courtyards usually create a greatmeditation space, as it creates a well-designed, securely open, and calm enclosed space,which helps in reducing stress and wiping up users' insecurities, especially for the elderly and users with any traumatic effects (Zhao, Mourshed, and Wright 2009).

Conclusion

Healthcare facilities complex compositions adds stress and negative energy to its users in general, which influence their well-being and productivity. Creating a healthy environment within these spaces requires a full understanding to the human being essential needs for nature; natural lighting and fresh breeze role in recharging people's energy should be one of the main design issues in such facilities. The considerable power of nature in reducing stress and supporting patients psychologically and physically, and its role in reducing the healing period has been proven by scientific experiments. This great connection between people and nature cannot be abandoned or denied, therefore, healing courtyards are one of the important design elements that should be seen more in designing contemporary healthcare facilities.

Healing courtyard gardens can provide a safe environment for users to exploit the benefits of having plants around by placing an in-out space within the healthcare structure, which maintains such spaces' privacy and provides a great chance for users to interact with plants. Achieving these benefits appropriately can be done through a set of factors that uniquely affect users' psychological and physical health, the factors as providing natural lighting, different exercises, and good activation of the different senses proved their efficiency in influencing the psychological and physical aspects of patients.

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by Night Cafe, Detailed Matte painting, housing, bricks and plaster

THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

30

THE ROLE OF THE INNER COURTYARD IN PROMOTING THE CONCEPT OF INTIMACY IN THE CONTEMPORARY DWELLING

MUTASEM AZMI AL-KARABLIEH

Abstract

The paper aims to identify the role of the inner courtyard in promoting the concept of intimacy in the contemporary dwelling in Jordan; as one of the essential architectural spaces that emphasize the concept of intimacy and belonging to the place in modern architectural design, this is given that the inner courtyard in the dwelling is a suitable place for the activities and needs of the various collective and individual members of the family, which provides a good space for family members to communicate with each other, and forms a natural outlet inside the home.

Keywords

Inner courtyard, Dwelling, Intimacy, Contemporary.

Introduction

Bachelard stressed that intimacy is one of the essential features of a place, not the geometrical qualities that make it up, so this gives us room to think about what we see; it also urges us (i.e., the place) to think about it and then sympathize with or feel comfortable with it, which leads to the disappearance of the actual place and turning it into a mere mental reflection that is more spiritual, this is what we can see in the art of painting, architecture, and sculpture... which constantly emphasizes the intertwining of spatial relationships through the way of playing with bright and dark colors, sizes and proportions, as well as lines and their directions, which works in its entirety to highlight the place and its features and contents.

Here, the people and things in the place melt into the meditation bowl so that everything around us becomes a familiar sight in the self. The inner courtyard of the dwelling, with its contents and objects, is filled with mental elements and philosophical conceptions, which give it its aesthetic value, enrich it and charge it with intimacy and dynamism. In this context, the inner courtyard of the dwelling acquires a cultural and social dimension, as "the exchange between spatial mental images leads to the adhesion of moral meanings to spatial coordinates." Moreover, the intimacy scene here results from these meanings in addition to the intellectual and aesthetic values, especially those related to "personality." Bersil and Book went in their discussion of Belzac. The details of the place indicated that Balzac "could not think of his characters in isolation from the houses in which they live ... and that he is not satisfied that the meaning of the existence of this being is in any way understood without an accurate knowledge of the things that surround him."

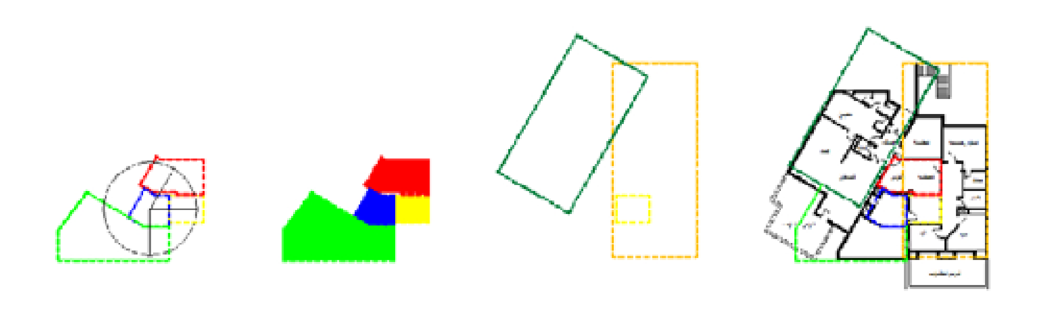
Returning to Kant, the domestic place and its awareness and space awareness emerge mainly from self-consciousness and imagination, for it is the pure mind that shapes the world, its presence, and its nihilism. This is in contrast to what was confirmed by the empirical school represented in the views of (Berkeley) and (David Hume). However, our perception of place and familiarity depends on external (extra conscious) experience. A place equals awareness of it, and intimacy is a cognitive self-awareness of a person in the surroundings in which he lives. The Greeks expressed this relationship through the concept of Homo Faber (meaning the manufacturing man), which is equal to the concept of (Homo sapiens) (meaning a conscious, sane person). That is, the human being with cognitive perception is himself the creative maker, and therefore the human being, according to the Greeks, wears or embodies the place emotionally and psychologically, including intimacy, at the same time without detachment from the industrial and constructive context of the place.

The courtyard in the contemporary Jordanian dwelling:

The concept of housing in contemporary thought has formed a concept that expresses a means and an end to thinking, and the inner courtyard of the dwelling has become a (social) phenomenon in that it is a form characterized by the interdependence of its parts visually, functionally, and formatively. Some courtyards appeared in the

contemporary Jordanian dwelling, which tried to return to the concept of family and intimacy by re-employing the courtyard of the house and the open balconies; this confirms the interest in creating an interaction between the shape of the dwelling and the individual who live in it, which distinguishes the dwelling with its typological and visual diversity. This harmony and competition between masses and emptiness give the ordered objects and open spaces a particular style of continuity. It is represented by the arrangement of rooms and corridors on the one hand and the open spaces that give us a visual extension. This form of organization makes us feel the inner space and interact with it. Since visual forms express relationships, they necessarily express the shapes' lengths and dimensions that impact our senses and feeling, which makes us describe them with expressive adjectives (such as beautiful or ugly). Proportion is harmony in these visual forms within the spaces. The symbolism of shapes, with the meanings they carry within them, is hidden behind these shapes to produce balanced principles and rhythms, the inevitable result of which is beauty. Awareness of the inner yard is an awareness and understanding of this relationship between the form as a whole and then moving on to the particles. Sympathy for these relationships is based on the proportionality that exists between them.

The formal elements in the inner courtyard of the contemporary Jordanian dwelling constitute a basic visual vocabulary with which the dwelling is organized, which can be read in (Fig. 1). so that all of the mass, size, and lines meet to produce an analogy finally. The general form includes a group of blocks that change and form in a way that changes the shape of the internal space. This distribution can be placed within the concepts of space perception, which can be expressed through two basic concepts: convergence and closure, which reinforce the principle of containment, intimacy, and interdependence of the inner courtyard (Fig. 2,3).

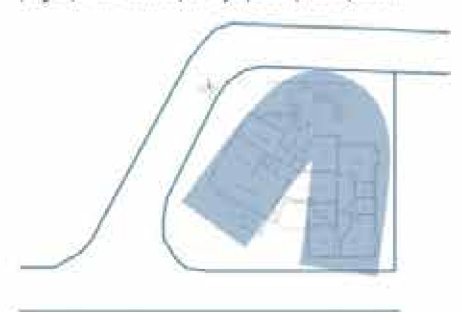


(Fig.1) Asnapshot of the Zuaiter House showing the dwelling and the spatial relationships that form it (overlap, closure, and closeness), which expresses the concept of containment (researcher's drawing)

The distribution of blocks and voids is linked to a formal structural relationship, which reinforces these relationships' connection to the mental image. Simplicity in shapes and centrality in the distribution of rooms and voids expresses the principle of encompassing, concentrating, and localizing the philosophical concept of Heidegger

(Fig. 4,5). Here, the paths of movement in the inner courtyard become a method for empowering and consolidating the concept of the family.

(Fig.2). the concepts of space perception.



(Fig.3). The general form includes a group of blocks that change and form in a way that changes the shape of the internal space.



(Fig.4). Inner Courtyard.



(Fig.5). inner courtyard become a method for empowering and consolidating.



Conclusion

In this context, the importance of the inner courtyard is achieved in its localization and employment in highlighting what we can perceive and understand about shapes, bodies, and structures. Therefore, the signs of harmony, compatibility, and familiarity are a reality that exists in the awareness of things that are represented in reality.

Therefore, before putting the patio in its functional framework, it must be aware of it within its concept as a residence through (the self), which necessitates focusing on researching the reasons leading to amazement and harmony that overwhelm us when engaging in it as a place where the family gathers.

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by Night Cafe, Detailed Matte painting, housing, bricks and plaster

THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

31

ANALYZING THE ROLE OF THE INNER COURTYARD IN THE CONTEMPORARY ARCHITECTURE OF JORDAN: A CASE STUDY

MWFEQ AL HADDAD, MARAH AL-TAL

Abstract

This paper investigates the role of courtyards in Islamic architecture in Jordan. The study aims to examine the significance of courtyards in the local culture, climate, and society, as well as the historical evolution of their usage in the built environment. A review of historical records and architectural examples reveals that the utilization of courtyards in Islamic architecture in Jordan dates back to the early 20th century and was widely prevalent in cities and villages throughout the country. However, the usage of courtyards declined in the 1980s and 1990s and was only recently revived by architects. The results of this study suggest that the revival of courtyards in Islamic architecture in Jordan reflects their continued significance to the local culture and society. The findings of this study contribute to the understanding of the role of courtyards in Islamic architecture and the importance of their preservation for future generations.

Keywords Inner courtyards, local architecture

Introduction

The inner courtyards played a major role in giving the local architecture its character and uniqueness over time. It was noticed in the last period, and with the beginning of the wave of the modernity the absent of inner courts from the local architecture, therefore, the objective of this research is to uncover the causes for the absence of inner courtyards in modern Jordanian architecture and to examine the efforts made by certain architects to include it in various ways by viewing it from different perspectives, including (Ja'afar Tuqan, Rasem Badran, Bilal Hammad, and Ayman Zuaiter).

What are inner courtyards?

In Jordan, the local architecture was characterized by incorporating elements of Islamic design, particularly the prominent use of inner courtyards, a feature common throughout the Levant region. Inner courtyards are a common feature in many buildings, especially in local architecture, where they were used for a variety of

purposes, including ventilation, light, and recreation. The size and shape of inner courtyards can vary depending on the purpose of the building and the intended use of the space. However, their presence in a building can greatly enhance the quality of the indoor environment and provide numerous benefits for the building's occupants.
The architect, Yahya Al-Zoubi, defines a courtyard as an enclosed space with continuous or semi-continuous walls on all four sides. The space forms closed or semi-closed rooms such as living rooms, kitchens, and bedrooms, with direct connections overlooking the courtyard. Some parts of the courtyards are covered and connected to the rooms through corridors with direct access (Al-Zoubi, 1972).

Evolution of inner courtyards throughout history

The presence of inner courtyards in buildings located in areas that vary intellectually, culturally, and temporally points to the commonality of the Mediterranean and eastern Mediterranean climates. Al-Basioni and Waked highlight that the concept of inner courtyards in residential buildings was not a novel idea in Islamic architecture, but rather, it has roots dating back to ancient Egyptian, Mesopotamian, Greek, and Roman architecture (Al-Basioni & Waked, 2009). Also, this supports the statement by architect Raeef Mouhanna that the creation of inner courtyards was a response to climatic challenges and evolved over time with varying degrees of success. The most expressive example of this evolution can be seen in the practices of Arab, particularly Islamic, peoples. They incorporated the principle of the "Heritage Trilogy" (acknowledging what exists, utilizing what exists, and adapting what exists) into the design of their inner courtyards, culminating in a distinct and harmonious integration with the house to form a unified and inseparable whole (Al-Naqer, Mouhanna & Ghanem, 2000).
The idea behind inner courtyards emerged from the Islamic civilization to address the needs of Muslims, as determined by Islamic legislation. This led to the preference for private dwellings that opens to the interior. This design was already in use in neighboring civilizations for practical purposes, but the Muslims elevated it, making it a significant component of their architectural style. The inner courtyard is described as an ideal solution, allowing for activities to be performed in a quiet, away from external noise. As architect Michele Lepore states, the Arab Maghreb also benefits from the use of inner courtyards as an effective thermal regulator. The high walls play a crucial role in reducing the amount of direct sunlight and creating shade, thus contributing to a more temperate indoor environment. The inner courtyards, therefore, serve as a fundamental architectural feature in these structures, showcasing the optimal utilization of this design in Arab countries (Lepore, 2009).
In Islamic cities, the use of inner courtyards is widespread in all buildings and houses. Residents adapted to opening their homes to these private spaces and closing themselves off from the outside. This can be seen in the house of Al-Kardelyah and Amna Bint Salem or the house of Al-Sahmi. These inner courtyards offer residents privacy and protection from external elements while providing a strong connection to the sky and surrounding rooms (Abed Al-Jawad, 1970). This can be seen in places like

Damascus's Umayyad Mosque, with its expansive courtyards filled with domes, or Al-Azem Palace with its own inner courtyard (Bahnsi, 1928).

The use of the inner courtyard in local Jordanian architecture

The use of inner courtyards as a distinct architectural element is significant in the Jordanian culture and environment. These courtyards can be found in many cities and villages, serving as a fundamental aspect of traditional homes, such as the house of Sharif Hussein in Aqaba. Also, the city of Irbid, due to its close location to Damascus, is particularly well-known for its inner courtyards, often placed in the center of the house and referred to as "Damascene houses" like the house of Arar, the house of Al-Nabulsi, and the house of Al-Shariri. This architectural feature can also be observed in homes located in Amman, like the house of Sharif Shaker, and in Madaba, like the house of Jacob Al-Sawalha, as well as in Jordanian villages like the house of Al-Kayed in Souf and the houses of Iraq, the Emir, and Al-Bardon. There are countless examples of this design, making it difficult to list them all.

The reasons behind the absence of inner courtyards in contemporary Jordanian architecture

The absence of courtyards in contemporary Jordanian architecture can be attributed to several reasons. Firstly, the traditional role of the inner courtyard as a gathering place for families and social activities has declined. Secondly, the role of the courtyard as a connecting element between surrounding rooms and upper floors has also disappeared. The change in the social system and advancements in construction technology have also played a role in reducing the significance of inner courtyards in both residential and public buildings. Furthermore, the widespread adoption of modern multi-story residential building designs has contributed to the elimination of inner courtyards. Finally, the high cost of land and regulations has led to the optimization of building spaces, causing many architectural features, including inner courtyards, to be disregarded (Abu Ghanimeh, A., Haddad, M., & Alshboul A., 2013).

Examples of inner courtyards in buildings designed by Jordanian architects.

According to architect Wael Al-Masry, who asserts that the growth of modern cities is posing a threat to the traditional Arab spatial design. This style, which was once a common feature in Arab cities, is now becoming extinct and facing challenges even in heritage cities. Although some contemporary architects are attempting to bring it back to buildings (Al-Masri, 2005). In this study, it will talk about a group of buildings that relied on the inner courtyard as an essential element in its designs, and examples of that are: Queen Rania Center and Zuaiter Villa, designed by architect Ayman Zuaiter,

Villa Al-Salt, designed by architect Wael Hamarneh, and the City Hall designed by architects Jaafar Touqan and Rasem Badran.
Queen Rania center is composed of four courtyards that serve as the backbone for organizing the spaces and directing movement throughout the facility (Abu Ghanimeh, A., Haddad, M., & Alshboul A., 2013). The shape of each courtyard is carefully crafted to suit its specific purpose, which include a reception hall covered with a glass roof, a transitional area, a child activity area surrounded by offices, and an area dedicated to artistic activities connected to the exterior squares. These courtyards not only fulfill functional requirements but also provide opportunities for play and recreation, particularly for children. (Fig 1&2)



Fig 1. Queen Rania center floor plans. (Zuaiter, A. 2023. Modified by the authors)



.Fig 2. One of the inner courtyards in Queen Rania Center. (Zuaiter, A. 2023. Modified by the authors)

Architect Ayman Zuaiter also designed the Zuaiter Villa and integrated the inner courtyard as an essential architectural element of the villa. The inner courtyard was intentionally designed to establish a central connection among the villa's functions. It appears to embrace the central space, where ample sunlight enters through horizontal and arched openings. This exemplifies the integration of nature and architecture into one spirit, as depicted in Fig 4. The inner courtyard also plays a role in managing climate and environmental conditions, such as ventilation and light distribution. Its irregular shape, as shown in Fig 3 is a distinctive feature of the courtyard.
The design of Villa Al-Salt displays the architect's intent to preserve the building's privacy by separating the family rooms from the guest room through an inner courtyard while maintaining functionality. The attached plan, shown in Fig 5, showcases the strength, clarity, and diversity of the architectural elements from the inner courtyard to the internal divisions of the building. The courtyard's large area provides a common area between the two parts and serves as a breathable area for the family. It also serves as a regulator of the environmental conditions in a semi-arid climate, like that of

Jordan, by offering a semi-enclosed, shaded area that allows the users to sit at any time of the day. Fig 6 shows a top view of the Villa design with the inner courtyard.

The City Hall, located in the heart of Amman, was created as part of the city's recent urban redevelopment effort. As shown in Fig. 7, the structure takes the form of a square, divided into four equal sections, each separated by walkways that connect the exterior to a circular courtyard in the center. The sections are connected by glass walkways located on the top floor. The circular courtyard boasts a minimalist design, reflecting the nature of the build as shown in Fig. 8 (Muhaisen & Gadi, 2006).



Fig 3. Zuaiter Villa floor plan. (Zuaiter, A. 2023. Modified by the authors)



Fig 4. Inner courtyard in Zuaiter Villa. (Zuaiter, A. 2023. Modified by the authors)

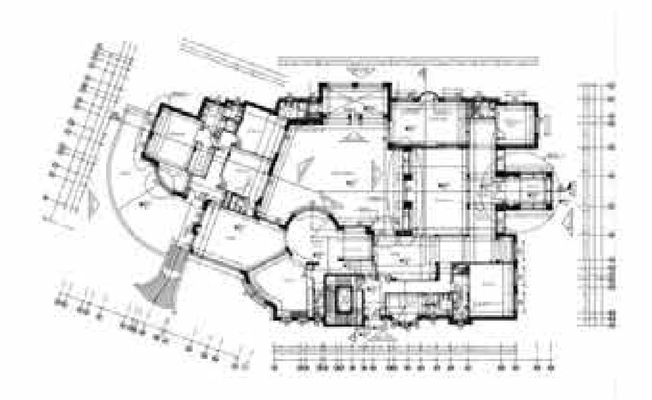


Fig 5. Villa Al-Salt floor plan. (Hamarneh, W. 2023. Modified by the authors)



Fig 6. Villa Al-Salt top view. (Hamarneh, W. 2023. Modified by the authors)

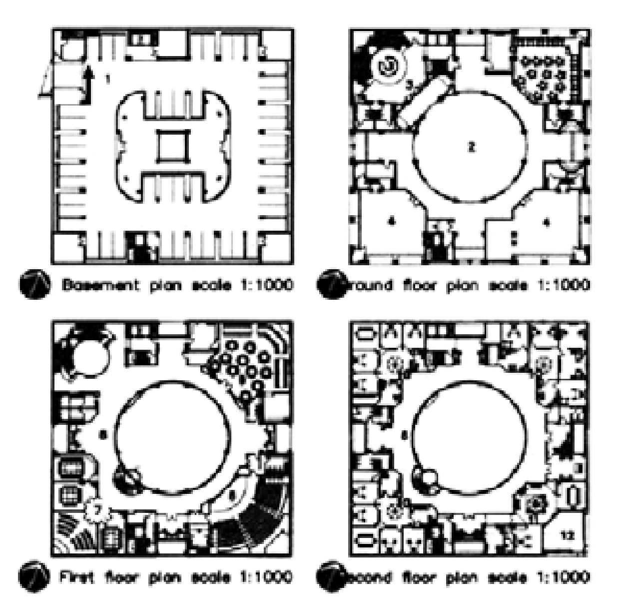


Fig 7. The city hall floor plans. (Abu Ghanimeh, A., Haddad, M., & Alshboul A., 2013. Modified by the authors)

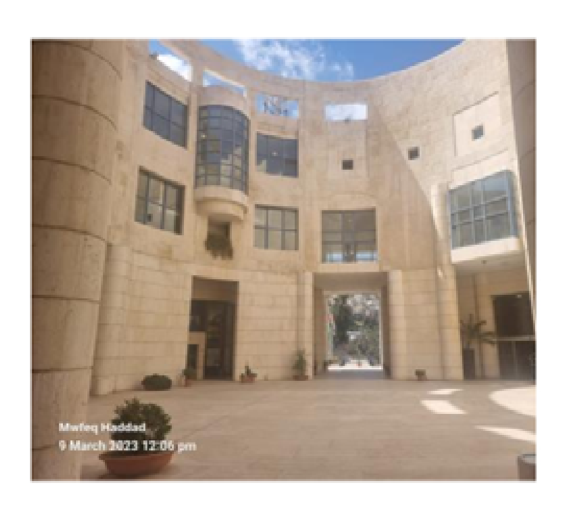


Fig 8. The city hall. (Authors, 2023)

Discussion

In comparing the works of various architects, it was found that architect stood out for his exceptional ability to incorporate multiple courtyards into his designs. Both architects Ayman Zuaiter and Wael Hamarneh followed an irregular shape to the design of the inner courtyard in the design of the two villas as a result of clustered order of different regular shapes. Conversely, architect Jaafar Touqan went beyond conventional boundaries by transforming rectangular and square courtyards into circular. All the architects seemed to concur on the importance of making the courtyards a prominent and central aspect of the building and its importance as a climate regulator for the building. Additionally, traditional elements such as fountains were the dominant features in the courtyards of most architects. Furthermore, a new shift in design was observed, as the idea of surrounding the courtyards with joint and semi-public activities gained popularity as it is shown in Queen Rania Center Case.

Conclusions

In conclusion, it is recommended that a contemporary approach be taken in utilizing local architectural elements like the inner courtyard as a philosophy in sustainable spatial and regional design. The use of appropriate technologies should be emphasized in order to achieve this goal. It is important to avoid mimicking traditional elements in a way that detracts from their original spirit and philosophy. Instead, the lessons learned from the use of inner courtyards should be applied to other traditional elements in order to create sustainable and integrated local regional architecture. To support

this process, legislation should be developed to encourage the use of inner courtyards in building design, which will enhance environmental performance and contribute to a more sustainable architecture.

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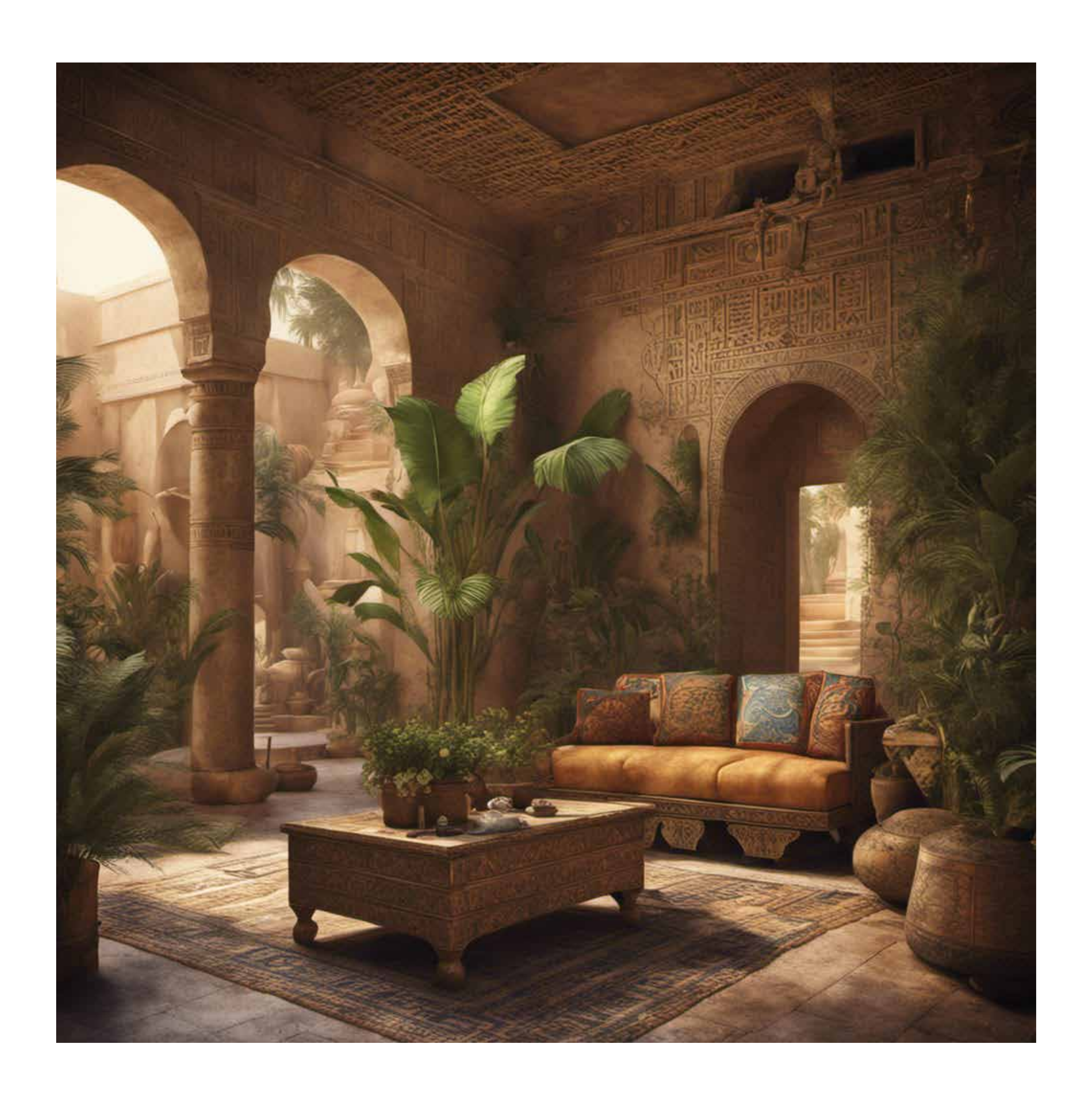
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by Night Cafe, Detailed Matte painting for an interior courtyard, in a traditional Egyptian house

32

MODERN CONCEPT OF COURTYARD HOUSE IN JORDAN: THE EXPERIENCE OF TWO JORDANIAN ARCHITECTS

NABEEL AL KURDI, MOHAMMAD ALJAHLANEE, DALIA ALSWEITY

Introduction

The spatial distribution of the Arab courtyard dwelling is probably mostly based on the climatic conditions. Because of the intensity of the summer sun and the extreme temperature differences, inhabitants do not use all rooms of the house at all times.
By the turn of the 19th century, Amman started to attract immigrants from the surrounding region, particularly Syria, Lebanon, and Palestine. The new modest accumulated capital quickly led to a steady growth of the city Centre. Settlements started to appear on higher ground and a distinct pattern of building up the slopes started to develop. The building material was stone and Palestinian and Syrian typological influences can be seen. The houses exhibited elegance and simplicity corresponding to the emerging Amman society. Courtyard houses and central hall type houses were built of stone, skilfully cut and ornamented. The houses established plateaus where they sat comfortably on the slopes of the mountains. (Hannoyer & Shami, 1997)
The following villas represent some modern examples on how to deal with the original concept of the Central hall villa type with a modern significance interpreted by two selected Jordanian architects.

Figure (1) Horizontal projection of the Queen Rania Center for the Family and Child. Adapted from http://www.tibahjo.com/

1.1 Queen Rania Center for Family and Child

In 2005, the Jordan River Foundation established the Queen Rania Center for Family and Child in Amman, Jabal Al-Nasr, to provide comprehensive services aimed at combating child abuse, strengthening family unity, and promoting a culture of child protection. The building was designed by Jordanian architect Ayman Zuaiter.

Architect Ayman Zuaiter, in his design of the center, showed a clear influence on Islamic architecture and abstraction in its essence, as he sought to consolidate the idea of emptiness and its characteristics and to highlight the concept of Islamic heritage. The design idea of for the center was based on the Islamic style, as he introduced some Islamic elements in the center, such as the inner courtyard, vaults, arches, and arcades.

Where the architect, says that to preserve the Islamic identity, we must return to our original Arab heritage and take the basic pillars and principles, and then formulate them with our tools, we, the architects, with contemporary architecture par excellence and local par excellence that preserves

our values and expresses the time and place with which they are linked. (Interview with the architect, website Secrets of Architecture, 2019)



Figure (2) Horizontal view of the Queen Rania Center for the Family and Child. Behavior, Taken from http://www.tibahjo.com/

1.1.1Architectural description of the building

Architect Ayman Zuaiter designed the building to suit the goals and services that the Jordan River Foundation seeks to provide, and with the needs of the groups that frequent it. It was considered that it contains in its environment what stimulates interaction, discovery and learning for all beneficiaries - mothers, girls, and children - of the available services and programs.

To achieve the principles and goals that the Jordan River Foundation sought to achieve in the center, the architect Ayman Zuaiter used more than one space as an internal courtyard. The building consists of three courtyards open to the top and the entrance hall, so that the internal spaces are distributed around these courtyards, and each courtyard forms the center of a section of the three sections of the building. Figure No. (1).

The area of the center is about (1700 square meters), where the building consists of three sections, Figure No. (2):

The first section: contains the administration, the meeting room, the entrance hall, and the computer hall.

The second section: contains office rooms, the library, the social activity hall, and an open courtyard.

The third section: contains halls for artistic activity, a studio, a playground, and an open courtyard. (Abu Ghanima, 2011)



Figure (3) General configuration of the building. Taken from http://www.tibahjo.com/

The design concept of the building:

The design idea of the building revolves around creating an external space in which the element of safety, the practice of social activities, and the achievement of privacy are achieved, around which the building's spaces are distributed, such as training halls, classrooms, educational ceremonies, and offices. This was achieved by reviving the system of internal courtyards in a contemporary way (Fig. 3).

Where the architect Ayman Zuaiter defines the inner courtyard as a void open to itself, it is a source of light and air and a place of tranquility at the same time. The story begins with living with the yard for a period and sensing the aesthetics of the place, and then paying attention to the architectural elements and components that produced this space. The priority here is for the planning aspect in terms of the relationship of the inside with the outside and the establishment of

an entity for the yard, before entering the plastic details, and by the planning aspect I also mean the method of indirect "marginal" entry and the distancing of the geometric spaces from the axial relations. This is a basic and essential point, and it is one of the design secrets behind the tranquility and intimacy that this place adds to its residents. After that, formations of elements and perhaps decorations come to complete the architectural formulation and instill the spirit in it, to the extent required from the functional point of view. (ibid)



Figure 4: Views of the interior of the courtyards

Architect Ayman Zuaiter was distinguished in his use of more than one internal space, such as the courtyard of Figure (3), and we notice this in his design of the Queen Rania Center for the Family and Child. The shape of the yard is based on the nature of use. Courtyards are used to form the central movement and distribute the spaces around it and are used to play by children in some of them. There are four courtyards in the center (ibid).

1.1.2Analysis of the interior courtyards in the project

The first courtyard was designed to be a reception hall for the building due to its proximity to the entrance, which is closer to the square shape with geometric dimensions (06.8 m * 6.45 m) and an area of (43.85 m ^ 2). As for the second courtyard, it was designed with geometric dimensions (5.7 m * 6.4 m) and an area of (36.5 m ^ 2). surrounding it. While the third courtyard was designed with geometric dimensions (9.45 m * 9.75 m) and an area of (92.14 m 2). Here, we find a revival of the idea of the inner courtyard being a social space, where gatherings and activities take place in complete privacy and in complete quietness) where children practice their activities safely. Finally, for the fourth courtyard, it was designed with geometric dimensions (7.55 m * 9.15 m) and an area of (69.1 m ^ 2). The courtyard is a place for practicing educational and artistic activities for children, as it is surrounded by ceremonies and rooms for educational activities.

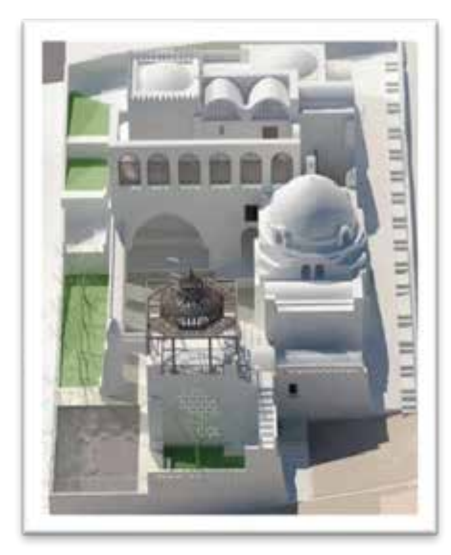
Elements emphasized on the concept of the courtyard were added, such as plant elements and a water fountain with its contemporary design. The open roof of the courtyard was used to provide natural lighting and ventilation, which created a comfortable and encouraging environment and atmosphere for children to practice various outdoor activities. As Ayman Zuaiter's design of the courtyards helped to achieve both privacy and safety for the children in the center, and to provide space for them to practice their various activities, which enhances the child's mental and physical ability, which in turn contributed to achieving the main goals of establishing the center. Figure (4)

1.2 Villa Abu Samer

The villa is in Shafa Badran with an area of 260 square meters. The villa was designed by Engineer Maher Abu Samra.

1.2.1 Design idea

The villa was built of stone using the style of the architect Hassan Fathi, where the thick, weight-bearing stone walls and the ceilings consist of domes, intersecting vaults, and regular vaults. Figure 5 (Villa Abu Samra)



Figure(5) Villa Abu Samra, (23/1/2021), an Islamic-style villa, taken from /https://www.facebook.com/ArchitectMaher

1.2.2 Architectural description of the building

The designer of this dwelling, the architect Maher Abu Samra, created this dwelling through his acquired experiences, and designed this dwelling that expresses the needs of the Muslim. The environment distinguishes it with some general characteristics, most of which are available in this house, as they can be detailed as follows: Figure No. (6)

1.2.3 Analysis of the horizontal projections of the project

- The building consists of an inner court, the "courtyard" open to the sky, surrounded by main voids, a loggia, an iwan, and a main Arab hall with a dome and two side iwans. The upper floor contains two sleeping wings, each of which contains a dome for the room, and an iwan for the bed as well. A dome over the bathroom and a terrace overlooking the inner courtyard of the house.

- The presence of a broken entrance: which does not lead directly to the entrance to the courtyard but leads to a square room and from there to a hall, to prevent direct human contact.

The presence of the open courtyard: which is the heart of the main house, the main elements and spaces wrap around it, and it usually contains a g arden and a fountain.

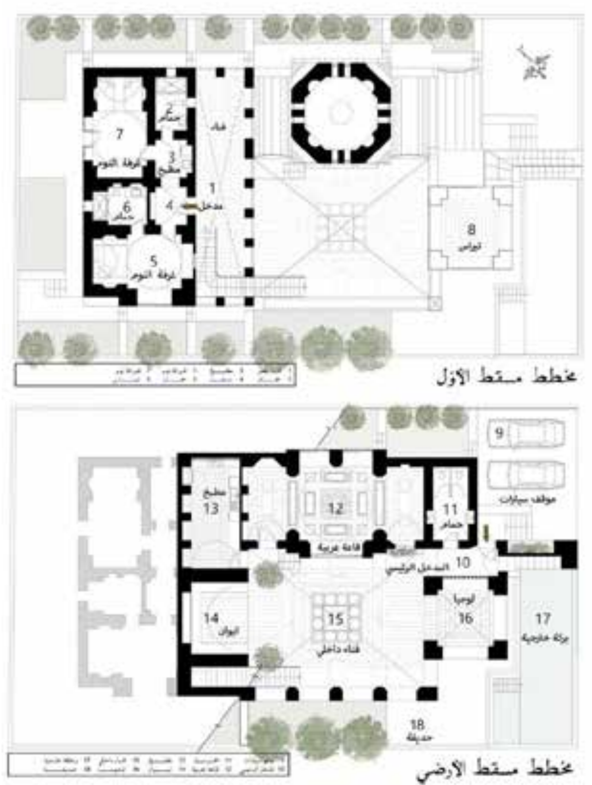


Figure 6, Project Diagrams; First and second floor 1:1000Villa Abu Samra, (23/1/2021), an Islamic-style villa, taken from /https://www.facebook.com/ArchitectMaher

The presence of the Takhbush or Iwan: on the ground floor, which is, on the inner courtyard, a roofed area overlooking the inner courtyard and used for sitting and receiving male guests.

- Presence of a loggia: a covered outdoor seating.

1.2.4Analysis of the inner courtyard in the project

The engineer, Maher Abu Samra, re-employed the inner courtyard of the villa, as it is located on the ground floor. As shown in Figure 7

The importance of using the inner courtyard to address the architectural problems in the contemporary housing, as it requires a re-study, formulation and employment of the traditional architectural elements that were the appropriate solution for the surrounding environment.

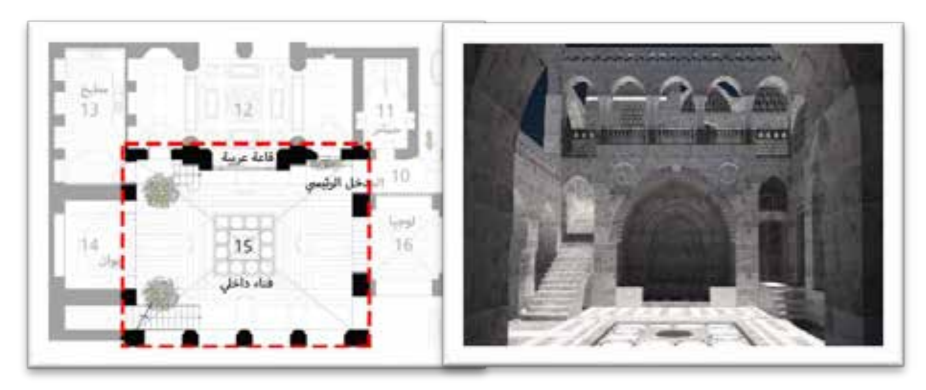


Figure 7: The inner courtyard Villa Abu Samra, (23/1/2021), an Islamic-style villa, taken from /https://www.facebook.com/ArchitectMaher

Inner courtyard:

- **Defining the inner courtyard architecturally:**

It is the internal space open to the sky, to which the traditional Islamic building is closed, and it surrounds some of the different rooms and spaces in the building. It has many characteristics and advantages, not only at the level of the building, but also at the general urban level of the city. (Ashi, 1999 CE, pp. 11, 12)

Where the architect Saher Abu Samra considered the inner courtyard:

1. The heart of the traditional dwelling and one of the most important architectural elements in its design and formation.

2. The place where family members enjoy privacy and safety and practice their various activities and work, in addition to being a comfortable place for children to play and supervise.

3. The architectural spaces around the courtyard derive ventilation and lighting, and most of the housing elements are directly connected to the courtyard, such as porches, pavilions, benches, and balconies.

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33

INSIGHTS ON THE COURTYARD ARCHITECTURE OF THE UMAYYAD PALACES IN GREAT SYRIA

NAIF A. HADDAD, LEEN A. FAKHOURY

Abstract
Given the limitted Umayyad secular and domestic architectural analytical studies, there is a real need for further research. This paper investigates issues related to the architectural heritage of the Umayyad palace courtyard in Great Syria. This research outcome is a brief evaluation of the Umayyad palace's structure with focus on thephysical, socio-cultural and politico-economic interaction between the palace exterior facades wall and the central interior square courtyard. Special attention is given to the courtyard proportion- to the place size and dimensions. The research concludes that the identity and authenticity of these palaces in these hot arid environments reform the design strategies into further technical and socio-economic sustainability strategies within their context. In addition, they had many qualities related to liveability and permeability, primarily seen in the liveability and permeability of the central courtyard space. It collaboratively integrates and adjusts the environmental conditions particularity, socio-cultural and economic practices of interaction, security, engagement, and solidarity.

Keywords
Arid landscape, Interior central square courtyard, Proportion, Geometrical order, liveability and permeability, Paradigm, Socio-economic sustainability.

Introduction

The Umayyad period is the starting point for what can truly be defined as Islamic architecture. Hence, it can be considered one of the Islamic culture's wealthiest architectural production periods. However, Umayyad secular architecture is best known from a group of desert palaces in Great Syria or, more accurately, Al Badiya palaces (often called Qasr in Arabic sources) constructed of stone and/or brick, in some rare cases (HADDAD et al., 2016). These palaces are a series of early Islamic installations that stretches from the site of Bayir in the south of Jordan to the vast complex of Qasr al-Hayr East, south of the Euphrates.

They have developed a unique architectural concept reflected in their location, density and fast spread in a relatively short time (approximately 715-750 AD) (Haddad, 2009, 2). Their remains were found mainly in the eastern desert of Jordan (Badiya) (**fig. 1**). Only a few were built in Syria (Qasr al-Hayr (727-9AD), the East and the West Palace, and a couple in the West Bank (Khirbat al-Mafjar in Palestine (**fig.2b**)). The sites in Jordan are distinct from those in Syria, as they are comparatively of modest scale and simple construction (Urice, 1987).

It is not, however, a coincidence that the more significant part of this architecture attributed to Jordan corresponds to palaces or private residences and to the new oligarchy who sought to forgo a new image and mark the change of power, as Grabar (1987, 134-135) has pointed out. This peripheral and countryside category was usually the engine of politico-economic activities. Even their economic, agricultural and technical innovations were intrinsically linked to urban centres and interregional networks.



Figure 1: a) Plan of Kharana Umayyad desert palace, as a model illustrating the interior layout space distribution, division, the bayts units and symmetry (After Haddad:2009, fig.5) **b)** The facade of the palace. .**c)** The court yard from different views.

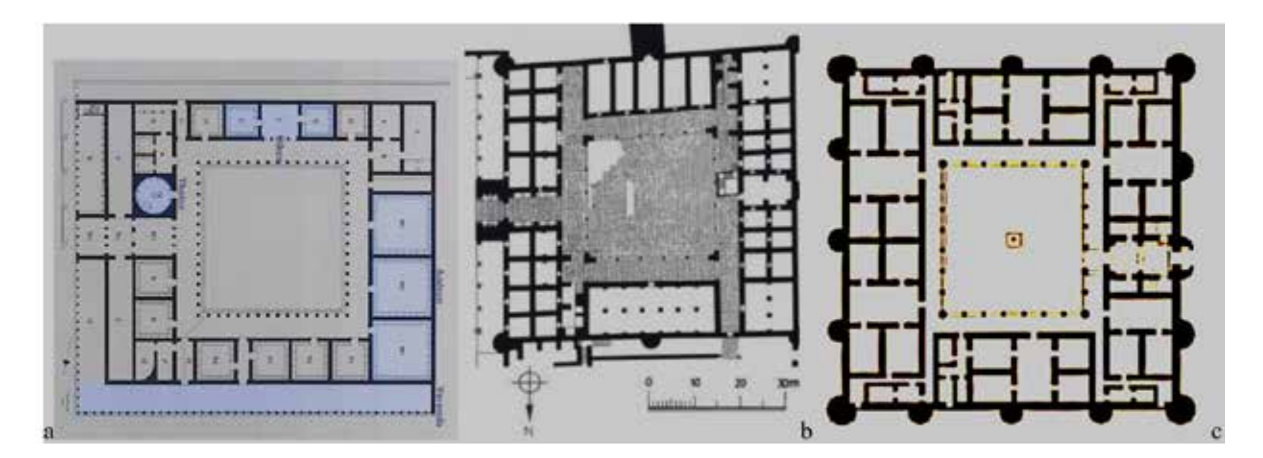


Figure 2: a) Plan of the palace at Aigai, the second half of 4th century BC, Vergina. **b)**Plan of Qasr al-Mafjar in Palestine (After Haddad,2009).**c)** Plan of al-Qastal Palace (After GRABAR, 1987).

Their Cultural significance

These are multi-functional activity structures imposed by the emergence and nature of the early Islamic state to strengthen the power and the economy of the newly established dynasty. Although meanwhile, their typological origin is derived from the Hellenistic/ Roman and Byzantine Great Syria traditions, where their basic plan is derived mainly from Roman military models (Haddad, 2009:1,8; HADDAD et al., 2016; ALMAGRO AND ARCE, 2001). The early Hellenistic example of the palace at Aigai, of the second half of 4th century BC in Vergina north of Greece (**fig. 2a**), is good evidence of their origin, as indicated at least from Qasr al-Mafjar in Palestine (**fig. 2b**) and Qasr al-Qastal in Jordan (**fig. 2c**). They ingeniously demonstrate how the Umayyad patrons adapted and reinterpreted Hellenistic, Roman and late classical Antiquity domestic and military architectural traditions during the early Islamic period.
On the other hand, being in an arid landscape where these Badiya palaces are located, water is power and travel routes are essential connections between water sources; to control water is to control movement on the landscape, which corresponds with control of the travel routes. Recent results of GIS analysis (Alhasanat et al., 2012, 343) show that these Umayyad palaces are carefully situated at routes of transhumance and water sources. Thus, to monitor routes of transhumance amongst the socio-political and economic centres of that period. Each palace also controls a perennial water source. They clustered at the outlet of Wadi Sarhan, and there is, essentially, line-of-sight communication between Azraq, Amra, Kharana, Muwaqqar, Umm al Walid, Mushatta, and Qastal. However, Qasr al-Hallabat and Qasr al-Tubah function more as two main patrol stations (Alhasanat et al. 2012, 356-57).

The significance of the Umayyad central courtyard design of the Badiya palace's;approach and size

According to Haddad (2009, 3-4), these palaces in Great Syria can be classified into three sizes:
- Small palaces, almost 30 x 30 m2 (such as Qasr al-Haranah) **(fig.1a).**
- Medium Palaces, almost 60 x60 m2, representing the majority **(fig. 2b,c).**
- The large Palaces, almost 150x 150 m 2 (such as Qasr Mushatta, Qasr al-Hayr al-Sharqi).

In the first phase of Umayyad architecture (706 -715), four palaces were built covering Great Syria during the same period. Three are medium-sized (Khirbet al-Maniya / Palestine 67 x 73 m 2, Jabal Assis / Syria 67.11 × 67.11m2, Anjar palace complex / Lebanon 59.5 × 71m2), while the fourth, al-Kharanah / Jordan 30.45 x 36.50 m 2 of the small size. These palaces are square in plan, with semi-circular towers buttressing the exterior walls with the flanking entrance Gateway. The square layout is a multi-functional space to control all activities and symbolise power. Thus, giving the palaces a sense of fortified appearance (**Table 1, fig.1, 2).** For example, trade at the Suqs, religious activities at the mosque, and political functions at the Qasr (Almagro and Arce 2001, 665), was just as a perfectly balanced, stable, precise, and rigid form that reflects power and strength (Haddad, 2009, 6).
Porticoes surround the interior central square courtyard, even two stories high, with the upper floor layout following the same guidelines as the lower. The interior spaces were arranged around the central square courtyard porticoes and often decorated with freestanding sculptures, carved stucco reliefs, fresco paintings and mosaics. The formation and evolution of this particular Secular Umayyad architectural plan are consistent with a geometrical order based on two main architectural concepts: (exterior facades wall / central square courtyard) (Haddad, 2009).
The aesthetic quality of the arid landscape of the palace environment is refined by the local society and is controlled by these individual structures that produce a uniform monotonous environment. Geometrical and mathematical principles are reflected clearly in their architectural formation starting from the surrounding environment and the use of building materials to the central courtyard. For example, the proportion along the side length courtyard to the length of the palace is between 45 % - 55%, except for Jordan (Qasr al-Kharanah 38 %, Qasr Tuba 41.1 % and Qasr al-Mushatta 40 %). The ratio of the courtyard to the palace space area in Umayyad Jordan palaces emphasises the reduction of the courtyard area, which is approximately 15 % (Haddad: 2009,4, Table 1).

This might indicate that these Badiya palaces as physical entities were produced within compatible environmental needs for the function, morphology, and structural requirements. It seems that the architects implemented a unified architectural code system based on the relation of both the exterior wall and internal courtyard design and dimensions to respond to the considerations mentioned above, thus their particularity. The location and general form, orientation, kinetic and visual axes, and a hierarchal organisation from the most public to the private spaces achieve the external expression and identity reflected in simplicity and clarity, while the comfort function of the building is mainly reflected in association with the central environmental courtyard design (**fig. 1, c**)

The Paradigm of the physical, technical and functional architectural elements of the central courtyard Umayyad Badiya palace

A typical Umayyad Badiya palace can be considered a microcosm of the space that reveals its direct relation with the arid-nature landscape. Meanwhile, energy circulation reveals the basic principles of bioclimatic architecture, where the courtyards represent the "green areas" of the palace. Many of these, especially the two-floor palaces **(Fig.1)**, has a series of slots analogous to the wind catchers. They are designed to improve the building's environmental performance by following the wind's movements around the building; they function when the air is moving and even in the evenings after sunset as passive cooling slots. These capture the cooler winds**,** directing them into the living space and displacing warm air. This is another perfect paradigm of the original, innovative reinterpretation of the palace's architectural elements for an exceptionally effective air conditioning system, beside the central courtyard, effective as the passive cooling core.

Table 1. Main Omayyad palaces in Great Syria (After Haddad, 2009)

No	Palace name	Period of Erection	Dimensions (m)	Court Dimensions (m)	Court /Palace area	court Length side /Palace	Notes
1	*Qasr al-Haranah / Jordan*	715 - 706	36.50 ×30.45	12.65x12.9	%14.7	%38	No portico
2	*Khirbet al-Maniya/Palestine*	714 – 706	73 × 67	41 × 40	% 33.5	%57	portico
3	*Jabal Assis / Syria*	714 – 706	67.11 × 67.11	31 × 31	% 21.3	% 46.2	portico
4	*Anjar palace complex / Lebanon*	715 – 714	71 × 59.5	32.5× 32.5	% 20	% 44	portico
5	*Qasr al-Hayr al-Gharbi/ Syria*	727	70.45N 71.03 ،S ، ، 71.45E, 68W	37 × 37	%26	% 51	portico
6	*Qasr al-Hayr al-Sharqi / Small complex in Syria*	729 - 727	74N,67S ، E، 71.50 68W	36 N, 34S,29E,28W	%20	45%	portico
7	*Qasr al-Hayr al-Sharqi / Large complex in Syria*	729 – 727	168.4N, 167S, 166E 167.4 W	83×83	% 24.5	%50	portico
8	*Qasr al-Qastal/ Jordan*	743 – 723	59 × 59	28 × 28	% 22.5	% 47.5	No portico
9	*Qasr Tuba/ Jordan*	744 - 743	72.85 × 70.25	29.6 × 29.5	% 16.5	% 41.5	No portico
10	*Qasr al-Mushatta/ Jordan*	744 - 743	144 × 144	57.15 × 57.3	% 15.5	% 40	No portico
11	*Khirbat al-Mafjar/Palestine*	744 - 743	64 × 61	28.95 × 27.3	% 20	% 44	portico
12	*Umayyad Palace in al-shegebeh, Busra/Irak*	744 - 743	69 × 58	35.7 ×35.40	% 30.6	50%	portico

Hence, these cooler wind slots' catchers combined with the central courtyard space in this characteristic Paradigm, especially in a hot climate, present architectural solutions that are practical and effective in

facing hot climate challenges. Meanwhile, the courtyard portico patterns- creates much shade in this hot arid environment, reduces external heat gain or loss, and blocks extreme air movement, which may carry sand and dust into the palace. A good paradigm is evaluating air temperature and movement inside the courtyard. The moderation of temperature extremes in these historical palaces was ahead of anything we do today. On the other hand, we can emphasise that the social and spatial features at the courtyard scale of the palace are most relevant to sustainable design today. These are of meaning in designing a natural ventilation efficiency and its relationship with building geometry and indoor air quality limitations. Interestingly enough, Moazemi and Goudarzi (2021, pp.47-54) examined the features of the "wind-catchers" and their use and function as a different natural solution, even in the context of COVID-19 restrictions. Furthermore, she emphasised the significant role of this natural ventilation of indoor public spaces in decreasing transmission of the Covid-19 virus in an enclosed environment.
However, there is a strong relationship between function and building. The palace's central square courtyard is effective for its environmental qualities and social advantages (**Fig.1, 2**). In this regard, the weight of the experience of the whole activity lies behind the courtyard building formation and proportion (**fig.1c**). This also has given the heritage of the Badiya palace its distinguished identity associated with developing these arid-sound environmental treatments articulating scientific knowledge and practical skill, which gave this Umayyad architectural, and cultural heritage this distinctive identity. In addition, re-establishing the traditional architectural identity is essential if sustainable cultural tourism areas are developed (Haddad and Fakhoury, 2016).
Meanwhile, the surrounding construct of palace interior spheres (practices and relationships); is spatially organised by the adaptable development of the various building spaces in response to changes in individuals' needs and means.The architecture of the buildings is also perceived to represent the government and the administrative Centre in the rural Islamic region of Great Syria (Badiya). Thus, it appears that the unity of the internal permanent square courtyard design combined with the external fortified architectural form, in different varieties of sizes and scales, and fixed orientation formed the standard architectural features. These are characterised by clarity and reflecting the image of the power of Islam from the outside, and the luxury of the central interior courtyard, based on the new lifestyle of the Umayyad (Haddad, 2009, 1,7). The palace courtyard reflects local building traditions and similar characteristics.

Concluding Remarks

To conclude, the Umayyad Badiya palace's identity is reflected in the relationship between the palace building and the surroundings, which adopted a new particularity of prevailing architectural interpretations in terms of the central court and the walls of the exterior facade, which are attributed to previous Hellenistic and late classical traditions. It is represented in its reliance mainly on developing the concept of the central inner square courtyard with multiple objectives and functions within a unified architectural form. Analysis of the courtyard architectural treatments and landscape resources in Great Syria Badiya palaces highlights the flexibility and adaptability of the old building form and how it has become an integral part of the working Umayyad architecture as a paradigm architectural form and landscape as a harmonic entity. The courtyard area reached about 15% to 25% of the total area of the palace. However, the courtyard began to move away from the central approach by the end of the Umayyad period and the beginning of the Abbasid era. Thus, the concept of multiple courtyards arose until its area exceeded that of the building, making it independent of the building itself and used as a natural garden.
. The particular identity of these palaces respect and deal with the physical dimension characteristics and environment, events, activities, and functions used wisely for resilient compatibility. These palaces from the Umayyad golden age testify to Belad Al Sham's (Great Syria) identity as the primary politico-economical Centre and as a significant stop on the caravans' route. Moreover, they demonstrate a face of Umayyad life in the Middle East, which is not widely seen elsewhere. However, there is a real need for a systematic approach to defining their particularity within their environment to their central courtyard space organisation. The relationship between function and building form, landscape, location and position

as multi-functional places based on the central courtyard for the activities for which these buildings were erected is significant. In addition, there is a need to assist their current state of preservation by suggesting an action plan for the modern use of their courtyards, interpretation, and conservation of these unique Umayyad resources.

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34

THE COURTYARD TYPOLOGY AS A REACTION TO CONTEMPORAR SOCIETY'S FRAGMENTATION

GRAZIA MARIA NICOLOSI

Abstract

In recent years, there has been an increasing interest in the consequences of what the academics define social "atomization". This paper discusses that, in reaction to the particular negative impacts of this scenario, the Mediterranean courtyard represents an architectural expedient to erect and enhance the relationship between people. In other words, incorporating a courtyard into a contemporary design could be a way to support social actions while also increasing a sense of place attachment.

Keywords

Microcosm, Collective identity, Social space, Human relation, Spatial sequence.

Introduction

Several studies suggest that contemporary society is discretized, atomized, and fragmented, and that the era of a unifying narrative, as well as the time of rites, myths, and history, is over (Han, 2021). In this scenario, the issue raised by Hashim Sarkis during the 2021 Venice Biennale - "How will we live together?" - permits to introduce an additional central question: which architectural and spatial components allow the human being—a hermit in the crowd, an unbundled atom—to live together again? In other words, how can an architectural space become a space of social interaction? Since architectural space is a framework for social and emotional experiences as well as community actions that, as sociologist Zygmunt Bauman stated, represent a remedy against people's fragility (Bauman, 2003), architecture has constantly reflected human existence and the relationship between physical and social space. The main argument of this essay is that the Mediterranean courtyard typology could designate a method of re-signifying architectural spaces in response to some specific and negative effects of contemporary society, where individuals are isolated and subjected to virtual images on numerous digital screens. Rethinking the traditional Mediterranean courtyard in a contemporary key could serve as an architectural solution for affirming social practices and community place attachment. Consequently, the courtyard is an architectural expedient, a unit of analysis, which makes it possible to contest the uprooting of intersubjective and social relations in both physical and social contexts.

Social aspect of Mediterranean courtyard

It is acknowledged that the courtyard typology is a form of collective living common in several ancient cultures of the Mediterranean area that has led to the establishment of the Arab, Babylonian, Hellenistic, Roman, and Spanish patio houses as well as determining the morphological conformation of the cities or villages in which it has settled. Although it is commonplace in numerous cultures due to the known climatic advantages for regions with dry and arid climates (e.g., microclimate control, exposure, dominant winds, temperature control, and sun radiation), topographical, geographical, and cultural contingencies have determined the definition of quite different typology of courtyards. Such differences depend on the type of spatial configuration and the position of the courtyard with respect to the rest of the village or city. Effectively, the courtyard space is an extension of the interiors and an architectural act of gathering around something. It could be the result of a tectonic space created by the construction of a fence, as in the Iranian and Egyptian traditional homes, as well as the traditional North African Moorish houses, where it is essential to protect oneself from the hostility of desert winds and for which the courtyard symbolically represents a window to the sky and an oasis of tranquillity and peace; or the consequence of ground excavation, as in the case of the Tunisian semi-subterranean housing of Bulla Regia; as well as the result of an empty space obtained from the aggregation of autonomous buildings arranged in a circumscribed way, as it happens in some typical rural houses of southern Italy and in some African huts (Steyn 2005). In the latter cases, the space is more permeable. This different characterization of the courtyard determines singular relationships with the space it is separated from. Furthermore, an "open" courtyard provides better penetrability with the surrounding environment, in contrast to a "closed" courtyard formed by a fence or excavation, a generator of a “solid-void” dialectic with it. The "open" courtyard is a hybrid area where the separation between private and collective spaces hesitates. In addition, even though the characteristic element of a courtyard is a fence – «the settlement principle with which a human group proposes its relationship with nature-cosmos» (Gregotti, 1979, p. 6) – the courtyard is characterized by additional sub-spaces. Some are completely private; others are semi-private, with the inhabitants and guests interacting. In addition, the spaces of the courtyard for the past Mediterranean civilizations represented the spatial projection of a community organism derived both from the uses of the family structure and of the collective one. For instance, both daily family life and socio-economic events took place in the Arab courtyard, where the space was organized based on the presence of men or women, familiars or guests; inside the Roman courtyard, in the space of the atrium, characterized by the central hearth or by the water collection system, the *impluvium;* as well as within the Hellenistic house patio of Greek origin.

The value of the Mediterranean courtyard for contemporary architecture

Since the courtyard is a physical and emotional microcosm, a social laboratory, the adaptation of the traditional Mediterranean courtyard to contemporary culture allows architecture to be a response to collective and cultural transformations and a facilitator of community relations for a pragmatic and real relational society, of which Pierpaolo Donati claimed (Donati, 1983). It is not a post-human society, in which relationships are imposed, instrumental, neutral, or indifferent. But a society where human relations are objective, real, differentiated, and constitutive of individual person. The common space of the courtyard in the Mediterranean tradition bears witness to this objectivity. It becomes a collective architectural place. Its value is such that it should be replicated and shared. Co-relation, co-sharing, confidentiality, closeness, and reciprocity are terms by which the courtyard could influence the semantics of contemporary living.

In relation to the role of architecture to promote social practices for individual and collective use, what happens in such places is collaboration and cooperation between people. The space of the courtyard, like the space of a square, is a privileged place of relationships, sociality, and meetings, where it is planned that an event of everyday life will occur. For instance, the Social Housing promoted by ZigZagArquitectura in 2010, in Miares, Spain, provides for the construction of 131 social dwelling articulated around a central urban courtyard. This semi-opened space allows residents to interact with the city while remaining a hidden and private place. The entrance to the apartments is through the intermediate space of the courtyard, generating relationships between the inhabitants. Consequently, the courtyard becomes a combination of private and collective spaces. The Social Housing in Sa Pobla in Maiora by RipollTizon makes use not only of the system of open courtyards for the exclusive use of inhabitants but also of the internal circulation systems through walkways that offer different degrees of introspection of the space. Here the courtyard also determines the control of the microclimate by managing exposure, dominant winds, temperatures, and sunlight. Moreover, MVRDV and Blanca Lle created an elevated courtyard in Madrid's Sanchinarro quarter in 2005, whose height of 40 meters and allows inhabitants to frame the landscape around the Guadarrama mountains, not a frame pointing to the verticality of the sky (such as for a traditional Mediterranean courtyard) but a frame toward the horizon. Nine independent blocks are articulated around this central vacuum, a private but collective space. Finally, the 85 social housing units in Cornellà de Llobregat, Barcelona, by Peris + Toral Arquitectes, also revolve around a central courtyard, a shared space visible from each residential unit. The filter between the private and public collective spaces is a portico open to the city.



1: Social Housing in Sa Pobla in Maiora by RipollTizon, 2010.

Conclusion

The architectural typology of the courtyard, a place of historical and cultural identity for the Mediterranean regions, is a space open to the sky where it is possible to enjoy nature but at the same time guarantees the introversion of intimately private spaces and the extroversion of collective spaces, creating degrees of physical, visual, and acoustic permeability. Its transposition into a contemporary key permits to create places designated for sociability and collective activities. The courtyard consents to moving from absolute private space to collective private space, where social relationships can be woven and a sense of community can be rediscover. For this reason, architecture could encourage relational exchanges by introducing expedients by which relationships can develop and reciprocity can be established. Furthermore, the courtyard, even if collective, serves as a filter between the chaotic urban environment and the tranquillity of home, as is customary in Mediterranean culture. It is directly related to different types of communal life.



2: 85 Social Housing in Cornellà by PERIS+TORAL Arquitectes, 2021.

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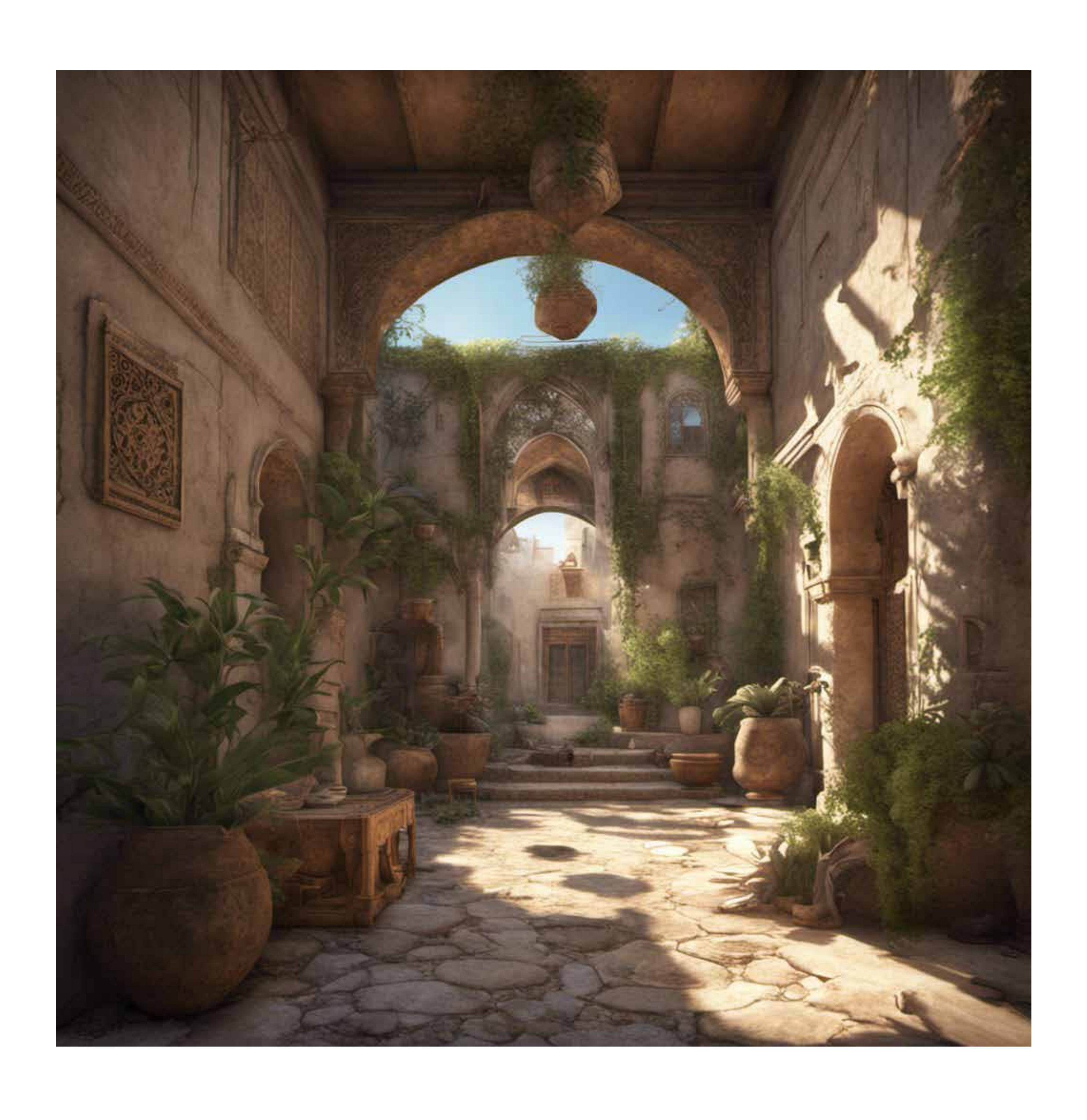
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by Night Cafe, Detailed Matte painting of a nostalgic design
of courtyard in a Syrian traditional house with sitting furniture and landscape planters

35

INTERIOR COURTYARD GARDENS IN ISLAMIC ARCHITECTURE

OLA ABDULLAH, ZEINAB ABDULLAH

Abstract

The garden played a significant role in the daily lives of societies, where it was designed as an indoor space for various uses while considering the need for privacy. In addition, the design of these parks as interior courtyards and their architectural elements during Islamic periods reached unprecedented levels of architectural and artistic creativity. This research sheds light on the design of interior courtyards in various private and public architectural buildings, and the different elements of the park included in each courtyard.

Keywords

Garden, Interior, Courtyard, Islamic Architecture.

Introduction

Islamic gardens are divided into two types based on spatial relationships: interior courtyard gardens and outdoor gardens. The courtyard serves as the central space around which other spaces revolve. Buildings with interior courtyards have become an integral part of Islamic architecture and a fundamental component of the interconnected fabric.

The use of interior courtyards dates back to a long period before Islam. This style appeared in most civilizations that preceded Islam in the Middle East due to the environmental adaptation required by the harsh hot and dry environment that prevails in the region. This concept was deepened in Islamic societies through the development of courtyard proportions, the height of buildings, and surrounding walls to achieve better environmental protection, and a focus on privacy through manipulating masses and spaces and connecting entrances to the courtyard. The use of courtyards in Islamic buildings was not limited to a specific function but included different buildings with general and specific functions.

There are two essential elements that play a distinctive role in shaping interior courtyard gardens: plants and water. They transform the courtyard from a simple space open to the sky to a garden. Interior courtyards often contain one or both of these elements.
Having a pond or fountain makes the courtyard's center a place of importance that has environmental, spatial, and aesthetic significance and dominates the courtyard. The placement of plant pots is chosen in spaces and shapes that harmonize with the courtyard's area, leaving enough space for movement pathways.

Methodology

Characteristics of interior Courtyard Gardens in Different Architectural Styles

1- Interior Courtyards in Houses:
Interior courtyards in houses are characterized by several features, the most prominent of which is that the courtyard represents a small garden space that takes on a regular square or rectangular shape. It is located in the center of the house and is surrounded by rooms. The courtyard is accessed from the outside through a broken entrance and contains plant and water elements in addition to wooden and geometric decorations. The location of the courtyard within the house is influenced by social, climatic, and economic factors.

Example1: Al-Halili House (one of the courtyards in the old houses of Damascus) – Alamaraa Aljoinee- Ola Damascus
Description of the courtyard garden : It has a regular square shape and is located in the center of the house, surrounded by rooms.
It contains the following elements: The "Bhara" (central fountain) is octagonal in shape and is surrounded by a variety of fruit trees and plants. The courtyard pavement varies between black, red, and white colors with defined geometric motifs. (Photo Source: by researchers 2023)





2-Interior Courtyards in Palaces:
Interior courtyards in palaces are characterized by two main points:
- Multiple courtyards within one building and varying levels of privacy according to the function of each courtyard, as palaces often had three courtyards.
- The ratio of length to width and height increases, and the space is enriched with various architectural elements.

Interior courtyards in palaces are distinguished by their rich decorative elements, including geometric, plant, and calligraphic motifs, as well as the use of water elements, green spaces, flowerbeds decorated with mosaics, stones, and marble.

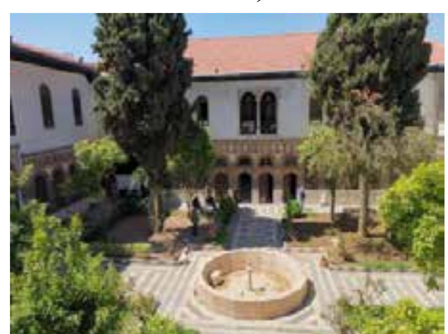
Example 1: Al-Azem Palace
The palace was built in the 18th century AD and is located at the northern end of Al-Bzouriah market in Old Damascus. It is considered a model of advanced Islamic architecture and is now the Folklore Museum. It contains three internal courtyards, each with varying sizes and areas according to their intended use (as the palace was divided into three sections: the guest section, the women's section, and the servant section).

The courtyards are characterized by their water elements (central fountains with marble and stone designs), which were used to decorate and adorn the place and cool the iwans. They are surrounded by gardens containing a variety of plants and trees (such as lemon, orange, bitter orange, as well as aromatic trees and shrubs like cypress and jasmine, in addition to medicinal and aromatic herbs).The palace is also characterized by its colored stones and geometric tiles. The rooms surrounding the courtyards have been converted into exhibition rooms showcasing the history of the old Damascus family. (Photo Source: by researchers 2023)






Example2: Anbar Palace (formerly the Palace of Culture)
Is one of the examples of old Damascus houses. It is a closed palace on the outside and open on the inside, divided into three sections, each with its own courtyard surrounded by rooms.
The inner courtyards are paved with alternating stones and marble, adorned with various central fountains and pools. Each of the three courtyards has a unique design, but the middle one is considered the most important because of its decorated oval-shaped fountain and natural garden containing a large number of green plants and trees, including citrus trees such as lemon, bitter orange, and orange, as well as decorative shrubs like jasmine, mélissa, cypress, and roses. (Photo Source: by researchers 2023)

3-Public courtyards:
Public courtyards serve various functions and are designed according to the needs and requirements of their users. The design of public courtyards varies according to the cultural and environmental heritage of their location.

3-1Courtyards in mosques:
Courtyards in mosques have evolved beyond their original function for prayer and are now also used for aesthetic and symbolic purposes. They typically have a paved area for prayer and a central pool for ablutions. The architectural elements often replace natural elements such as trees and greenery, and the facades are adorned with natural geometric motifs.

Example1: The Umayyad Mosque
Is one of the most beautiful and oldest Islamic buildings that still exists with its unique and magnificent structure. The mosque building was designed in the form of an open courtyard, surrounded by three rows of columns and a covered sanctuary in the middle with a high arcade from north to south.

In describing the interior courtyard of the mosque, we find that it is devoid of plants or trees and only contains a water element that was used for ablution. The facades surrounding the courtyard are decorated with geometric and plant elements of mosaic, and the courtyard has marble paving. (Photo Source: by researchers 2023)

3-2Courtyards in schools:
Courtyards in schools typically follow a quadrilateral pattern surrounded by classrooms. The location of the courtyard varies according to its functional needs, either at the center or on the side of the school. The courtyard may also be used as a dormitory for students and may overlook the main courtyard or a small independent courtyard. The function of the courtyard is educational and social for students.

3-3Courtyards in markets:
Courtyards in markets are located in the center of the market and surrounded by commercial shops and warehouses. Their function is commercial, so they often lack green spaces but may include water features. The courtyards separate the shops and provide functional and environmental comfort for their users. The function of the courtyard is commercial.

Conclusion and Recommendations

The lack of attention given to studying and documenting the art of designing interior courtyards in Islamic societies has led to a significant portion of them disappearing without any documentation. Therefore, it is essential to focus on studying this art that is closely related to important cultural and social aspects. The concept of the interior courtyard should be promoted in a contemporary style that is suitable for the environment and achieves sustainability. Encouraging the creation of gardens within homes, raising awareness of their importance, and collaborating with various entities to achieve this should also be encouraged.

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THE EFFECT OF ARCHITECTURAL AND DECORATING VOCABULARY ON THE INNER COURTYARD

OQBA FAKOUSH, AMEEN SAAB

INTRODUCTION

The models of Damascene homes were numerous and characterized by its good planning and decorative architectural art that distinguishes many of its internal patronage, and its designs, area, and level of cookies differed according to the social and economic status of Damascene families.

"Do you know what it means for a person to live in a perfume bottle? Our house was that bottle," says Nizar Qabbani. Flowers, winds and aromatic plants in which they are planted make faces fragrance with fragrant scents, and because this house provides everything that the soul needs, Qabbani says, "This house captures all my feelings and lost me the appetite for going out to the alley."

Types of Damascene houses according to internal courtesy:

1. The house with one court 2. The house with the two court 3. The multi -court house.



Site plan of AL-Baroudi - Damascus



Site plan of Anbar house - Damascus

The inner courtyard came in response to the challenges of the climate, so that the designer entered a mini climate to the house, and this input requires a special agricultural engineering treatment, so the designer dominated this courtyard with intelligence and skill and its perpetrator with the core of his life, so integrating inside the house with the annihilation and interacting to give an organic unity in which man fused. With intimacy and harmony, as this annihilation reflected architectural treatments with several features and an explicit response to the climatic conditions in our city, and among these features:

1. Create a moderate local climate:

The inner courtyard has created a local climate that achieves a decrease in the temperature, as a result of the shadows resulting from the corresponding of its ribs and the result of the evaporation of water from the lakes in it, as it is the reflection of the sunlight on the surface of the water and reduces its level of absorption An important role in weakening solar radiation by 86%.

2. Insurance of ventilation:

   The difference in air pressure between the interior and the outside secures good ventilation, and the level of the inner yard in the heat of the air yield is not affected by the air currents and external weather fluctuations, so the annihilation was credited with limiting the lack of dust and dust inside it as a result of excessive humidity.

3. Securing a good relationship with nature:

   The inner yard in the Damascene House provides a good relationship with nature with its trees, plants and water in a blessing inside this garden, so there was a fountain that provides air hydration and increases the fresh sensory effect that is delighted.

4. Natural lighting insurance:

   The inner yard garden provides natural lighting, and determines the dazzling sunlight in opening windows and overlooking the different rooms on it, to avoid the difficulty of opening it on the lane, sufficiently for ventilation and lighting.

Architectural elements in the inner courtyard Plants: There are jasmine, berries, narsal,

rabid, lemon and orange.

Among these plants are aromatic species such as the night fragrance, the handle cologne, the basil, the jasmine in both the white municipal, the yellow patent, the levant porch, and there are climbing plants such as crazy, Umm Kulthum and the rough passion..

-In addition to the plants that bear cute social implications from the Levantine environment, such as courtyard And the tongue of protection and others.

-Medicinal plants such as seal, sage, and Mallasa .... Like some types of lemon.





The inner courtyard (Al -Baha):The land of the homes, or what is called the circuit of the house or the courtyard: is an element of traditional houses, which is a square or rectangular space open to the sky that mediates the house, usually tiled with a black, basal stone or colored marble and arranged on the ground in an artistic manner known as the mushroom, and around the land The homes are distributed by the rooms designed in a way that prevents air leakage, and with wide walls to prevent cold and free, and in the middle of them, the sea is located. The Damascene trees and the stairs, which are characterized by broad walls to prevent cold and free, with its colorful wall, windows, decorative and architectural elements. Attached to the Iwan is open to the north and located on the axis of the sea

.




Al -Bahra**:** It is an important element of architecture, which has been distinguished by the heavenly courtyard in traditional houses.

They have different circular, square or ribs with regular ribs,It is carried out with different construction materials of grilled wage, covered with marble, and at other times with black and white stones decorated with curved engineering and technical threads distributed on its edges, marble, or stone, in red and white, in the middle of them a marble fountain as well.

It has an important role in moisturizing the atmosphere; It gives cold in the summer.





Heating system in Damascene Homes: It is often made of furrowed stone, marble, alabaster, basalt and its design take the shape of the maze, The air and the hot steam from the heating are transmitted through pottery tubes. Then the steam moves to come out of the heat in the middle of the land of the homes, which are close to the lemon and Norang trees, and it will be a way out for the escalating steam to soften the atmosphere on winter and prevent frost formation.




Iwan: Iwan is a room with three open walls on the land of the lands, its shape is square or rectangular with a height of two floors without being topped by anything and its roof contains colorful wooden decorations called (Ajamia decoration).

It rises from the level of the land of nearly half a meter, as it is climbed with several degrees through which it is possible to enjoy the aesthetic features in the courtyard and it is often on the axis of the sea that mediates the yard.




Looking: The higher section of the Iwan separates from the courtyard with a stone arc, its floor is high from the courtyard,

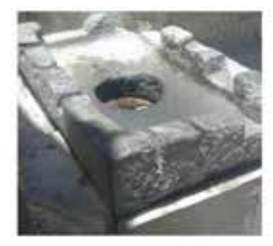



well: A place for water that was used in the past to obtain water is located in one of the ends of the courtyard or within the kitchen is from stone or marble




Al taleh Stone Aquered is located within the lanes that receives water when the water level in the river is high and distributes it to the sea at the adjacent entrances.





The stairs: There can be several drawers at home, placed within the courtyard or within the construction block, exposed or covered, built of stone or wood.




The walls surrounding the celestial courtyard: In addition to the black volcanic stone, it can be decorated with a frame of geometric motifs engraved on the white stone filled with plaster.



hallway: A roofed corridor on the ground floor overlooks the celestial courtyard with a number of equal or different arc holes .



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Architectural elements in the interior facades of the walls of the courtyard:

Traditional windows and doors: There are many forms of windows, including the rectangle, including the arc, topped by a sliced or straight, and the opening with the vertical clouds or the conquest with joints according to the architectural style.





Traditional bows**:**Including circular, pointed, or fried brackets, or the vehicle, which is carried out with black bachelor's stone or alternating stones and various measurements according to the architectural style.

Lunar: It is an Alawite opening with the wall whose forms differ \ (oval stars ... round ....)









Al -Mandalon: A window above the outer door or doors overlooking the celestial courtyard in the earthly pod (arc .. semi -circular ..) made from a stone frame in the middle of carefully and professionally operated iron.







Technical and decorative elements in the walls of the courtyard in the Damascene House:

Mishkat: It is a small mihrab within the wall in which the old, decorated copper lamp is placed in silver at times in the floor of the courtyard where they have various and different shapes.








Al -Ablaq: It is a mural from the black, white, white and pink bacilli stone, alternating by architectural style.






Elder: Installized stone and plant decorations filled with colored -colored paste used in the arches of doors, windows, murals and okha walls






Drilling: pieces of stone, marble, or brick carved in a null or depleted in geometric, vegetable or writings






Muqarnuses : Stone pieces engraved with 3D dug.






Mosaic: Small pieces of glass or stone combined to form an artistic plate for floors and walls.





The elements on the upper floor overlooking the yard and forming part of its inner front.

Bright: The brightness is a vacuum used on the upper floors exposed or covered open on the celestial courtyard.



Walking: a roofed external corridor that connects the rooms on the upper floors overlooking the inner courtyard.





courtyard of the House of Al -Azm in Damascus:




The internal facades of the annihilation of the Anbar Office House:



Conclusions

Damascene House from the inside other than the outside, from the inside a paradise and from the outside a simple house built of clay and stones.

Sources

The Book of the Damascene House of the writer Zakaria Muhammad Sulfur.

The book of the urban history of Damascus, by writer Lotfi Fouad Lutfi.

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INHABITING THE MEDITERRANEAN COURTYARD HOUSES IN THE ARCHEOLOGICAL AREA OF THE VALLEY OF TEMPLES IN AGRIGENTO: A DESIGN EXERCISE

PASQUALE MEI

Abstract

Living around a void constitutes the pivotal theme highlighted in this essay, which traces the historical genesis and subsequent contemporary reinterpretation of the courtyard house typology in the geographical area of the Mediterranean basin. The contribution concludes with a critical reinterpretation, concretized through a design experience, on the theme of the courtyard residence in the context of the archaeological heritage of the Valley of the Temples in Agrigento, conducted in the Architectural Design Studio 1 at the Milan Polytechnic, which has joined the national IncipitLab[1] network.

Keywords

Courtyard, Patio, Typology, Tradition, Mediterranean.

Introduction. Genesis and characters of the courtyard house

The theme of dwelling in the geographical context of the Mediterranean has, since its origins - coinciding with the Neolithic period developed between the 8th and 4th millennia B.C. – been characterized by living around emptiness. The domestic environments of the first permanently settled farming communities were organised around an open space, giving rise *in nuce* to the so-called 'courtyard house'. The latter evolved over time among the different populations that lined the Mediterranean basin, such as the Anatolian (8th millennium B.C.), Etruscan (5th century B.C.) and Greek (3rd century B.C.), Roman (2nd century B.C.) and, finally, Islamic (13th century A.D.)

[1] IncipitLab is the national coordination of the 1st year Architectural Design Workshops, devised and coordinated by Andrea Sciascia and networking several Italian and European schools around a reflection on project pedagogy.

populations. A typology, that of the courtyard house, which has evolved over time and developed with different morphemes at different latitudes of the Mediterranean basin. Each of these populations, in fact, has been able to decline the essential characteristics of this typology by accommodating different environmental needs, thus giving rise to a rich sequence of formal variations that make up the different models of the 'courtyard' housing type. The spatial configuration of the relationship between the interior void - represented by the open-air courtyard - and the fullness built around it, was mediated by various elements such as: atrium, cloister, portico, and peristyle. It was precisely the latter, designed to fulfil functions mainly of ventilation and lighting, which ensured the development of the courtyard residence in the various temperate climatic contexts of the Mediterranean. In addition, the 'introverted' character of the courtyard type has always ensured respect for private domestic life, helping to delineate a residential model so up to date that it can continue to elaborate limitless experiments. The variation of the way of composing living spaces, around the theme of the enclosure finds, after all, still today a correspondence in the Mediterranean dwelling archetypes of the 'Greek house' and the 'Roman domus'.

Courtyard architectural typology and morphological development of the city

The elementary cell[2] of the courtyard house represented an easily combined aggregative possibility and constituted, in the development of the Mediterranean city, the construction of morphological fabrics. Some examples that could be cited are: the blocks of the extension of the Greek city of Olinthus, the result of an aggregation of houses defined around a void; the morphological fabric of the excavations of the city of Pompeii, the result of an urban composition of blocks made up of several domus; and, finally, the irregular and compact morphological fabric of the Arab casbah, given by the aggregation of 'patio houses'[3], capable of generating a dual relationship between private interior space and public exterior space, through a sequence of continuous entrance thresholds misaligned so as to prevent a direct view into domestic spaces[4]. The relationship between the architectural typology of the courtyard house and its relation to the morphological development of the city finds other examples in urban history – such as in the Renaissance courtyard palaces – which were able to transform the medieval blocks into a new morphological fabric, offering a new face to the city.
The courtyard type finds a further development, if investigated in the history of architecture, through the experiments elaborated by the most illustrious Masters of the

[2] In this case, the cell is understood as the minimum unit in which it is possible to recognise the founding nucleus of the urban composition of the block. For example, we can state, with a metaphor borrowed from the discipline of chemistry, that the atom of a matter is to the architectural typology, just as the molecule of the same matter is to the urban morphology of the city.
[3] In the specific case of the Arab house, reference is made to the 'patio house', distinguishing this typology as a variation of the 'courtyard house'.
[4] This condition preserves the closed and introverted character of the 'courtyard house'.

20th century: the "regenerated" theme of the collective residence – according to the new canons of modern architecture and, more generally, for the design of the city's expansion proposals – was an opportunity to "redeem" the settlement model of the courtyard house, reinterpreting it according to modernity. the settlement model of the courthouse, reinterpreting it according to modernity. This experience can be summarised according to the two different cultural sides: on the one hand represented by architects belonging to the Central European and Nordic cultures and on the other hand, that one described by architects belonging to the Mediterranean culture. One could cite a number of outstanding examples, such as to become true cultural paradigms for modern architecture: the design study for Ludwig Hilberseimer's 'Terraced Houses with Courtyard' (1929); Ludwig Mies van der Rohe's 'House with Three Courtyards' (1934); Alvar Aalto's house in Muuratsalo (1953) - a construction in which the Scandinavian architect experimented with a mutation of the 'courtyard house' to define a new L-shaped typological layout; the complex in Helsingor (1956) by Jorn Utzon and the Vellevue Bugt residences in Klampenborg (1961) by Arne Jacobsen, to name but the most important ones. Paradigmatic in modern Italian architectural culture are the prototype of patio houses for the 'horizontal city' in Milan (1940) by Angelo I. Diotallevi, Franco Marescotti and Giuseppe Pagano - in fact the first theoretical study that reinterpreted the courtyard house typology in a modern key - and the project for horizontal dwelling units in the Tuscolano district in Rome (1952) by Adalberto Libera. Experimentation with the 'courtyard type' residence, closely linked to the world of Mediterranean culture, also found further applications at the end of the 20th century in Portugal: in Álvaro Siza's project (only partially executed) for the Malagueira quarter (1977) in Évora and in Eduardo Souto de Moura's patio houses (1993) in Matosinhos.
The concise discussion developed so far is necessary to identify the salient points on the evolution of a residential model declined according to the different climatic requirements of the place - in time and space. A brief excursus, but useful - as well as necessary - to instruct the work programme envisaged in the "Architectural Design Studio 1"[5]whose theme was "Living in the Mediterranean".

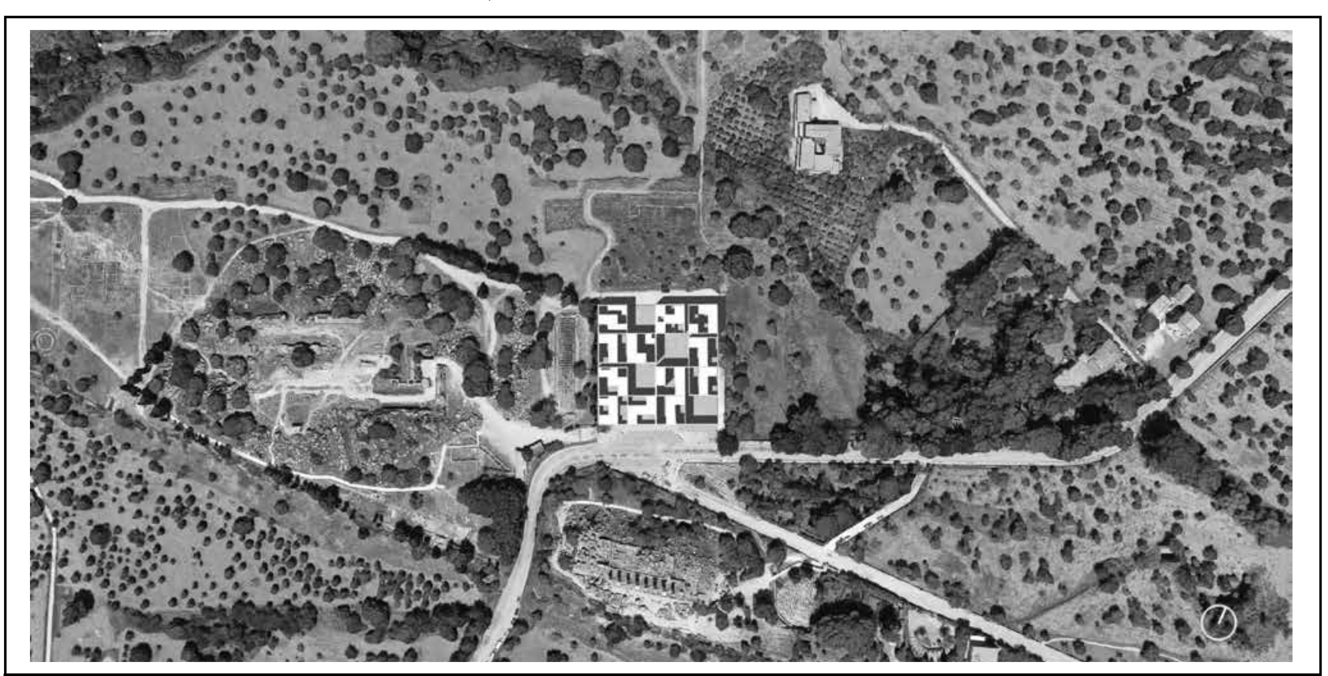
Conclusions. Project for courtyard residences in the Valley of the Temples in Agrigento

Within the described cultural and scientific framework, the didactic exercise focused on the design of a complex of 'court houses' for travellers, within the Archaeological Park of the Valley of the Temples[6].

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[5] The Laboratory is taught in the first year of the three-year degree course in Architectural Design (L-17) at the Piacenza Campus. The academic year of reference is 2020-21.
[6] The theme for A.A. 2020-21 was defined and proposed by the coordination of *IncipitLab*.

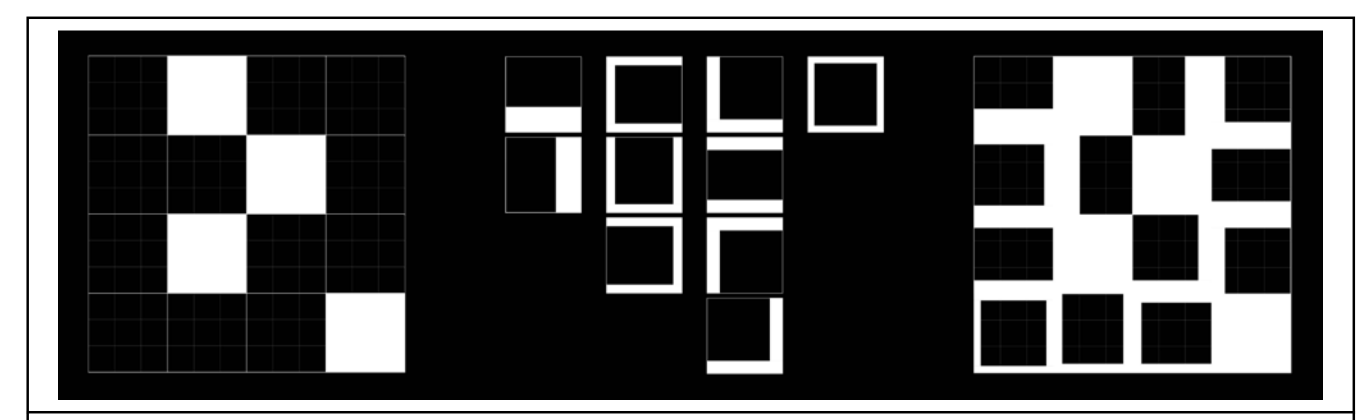
The area, a 60-metre square, lies between the ruins of the Temple of Olympian Zeus and its altar to the east, the Temple of the Dioscuri to the north-east, the Temple of Hercules to the south beyond the Provincial Road[7] and, finally, the Temple of Concordia to the south-west; while the profile of the city of Agrigento stands out on the northern front. The lot identified for the courtyard dwelling project is occupied by an embankment basement within which some spaces are used as a storage area for Park maintenance tools, while the terraced roof, at the level of the provincial road, is used as a parking area for Park visitors. The plot area concludes with a single-level building, located in the south-east corner, which houses a refreshment area for tourists.



1: Context with the insertion of planivolumetric

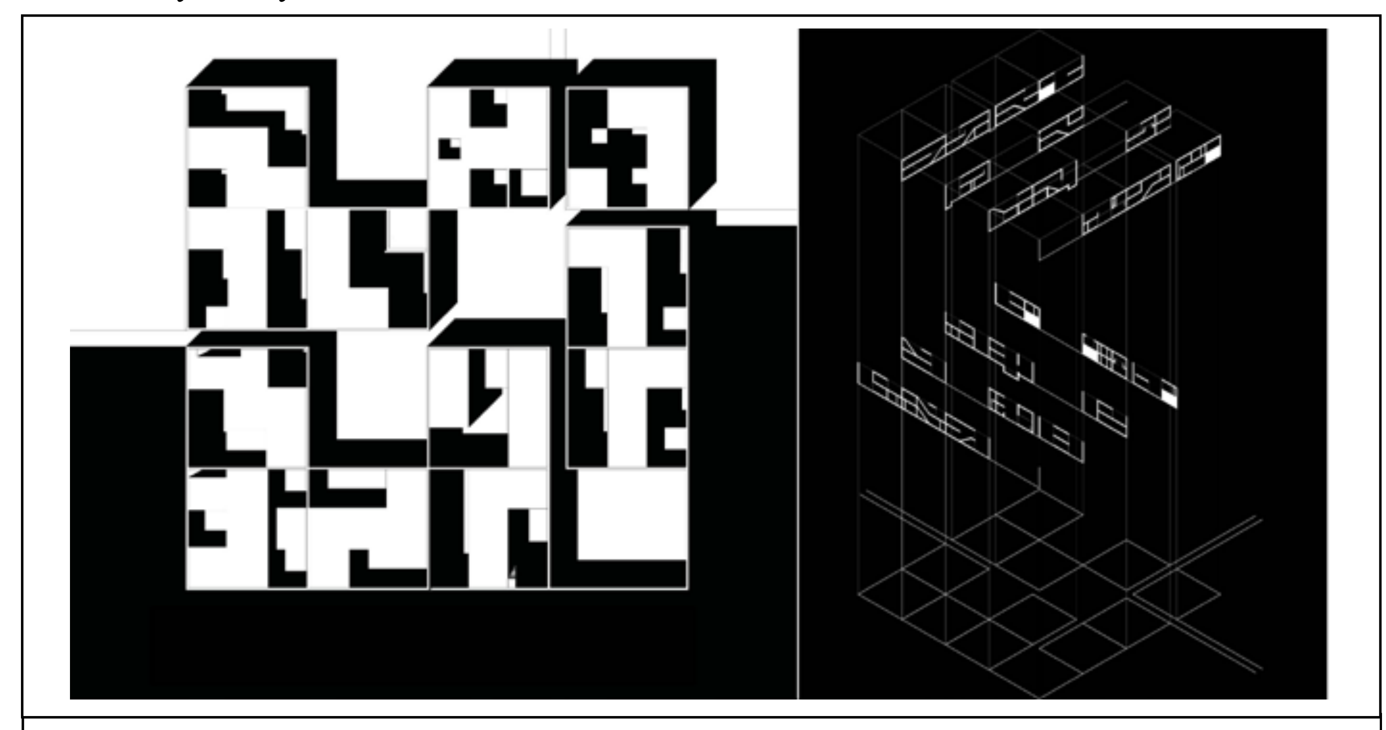
Methodologically, the design activity was marked by the following phases of work: reading of the site's situation and subsequent hermeneutic elaboration; identification of the settlement principle; definition of the architectural configuration through the relationship between the external space (voids and courtyards) and the internal space; and, finally, further study phases aimed at defining the figurative, structural and programmatic aspects of the courtyard houses. The sequence of the distinct phases was intended as a fundamental moment, from a pedagogical point of view, for a partial and gradual approach to the final solution on the part of the student, all aimed at the acquisition of a culture and education in architectural design of a prevalently synthetic and holistic nature.

[7] The Agrigento provincial road No. 4 is also called the Panoramica dei Templi road.



2: Diagram of the relationship between houses (12) and courts (4); Settlement schemes; Ideogram of the full/void relationship.

The preliminary work to define the content of the programme, organised by the teaching staff, involved dividing the square plot into 16 squares, each with a side of 15 metres. Subsequently, possible aggregative schemes were identified within the grid, characterised by the relationship between 12 useful squares with a side of 15 metres for the settlement of the residence (useful surfaces) and the 4 empty squares defining as many courtyards shared between the different residences.



3-4: Planivolumetric and sections

Therefore, each individual project, developed in pairs by the students, involved the design of a house within a square of 15 metres side, with a total usable area of 225 square metres and a maximum volume of 675 cubic metres to be developed on two levels. The limit of the ground floor area was imposed by having a maximum of 1/3 of the 225 square metres of space dedicated to the courtyard, while on the upper floor 2/3 of the 225 square metres.

From a methodological point of view, the design experience was approached through three different distinct moments, which subsequently merged into a simultaneous verification of the themes addressed. They were: working in section to better understand the relationship of the open space between the two different levels; working in a plan, to compose an aggregative system between the different 12 units in a coherent way with respect to the circulation within the open collective spaces of the 4 shared courtyards; and finally, working with the perspective representation technique to define frames/openings capable of focusing on the relationship with the archaeological remains of the park and, to the north, with the contemporary city of Agrigento.

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38

THE INNER COURTYARD IN THE ARCHITECTURE OF THE MEDITERRANEAN BASIN: A CASE STUDY OF THE HOUSES OF THE ANCIENT CITY OF AL-SALT

SAJA ABU HAZEEM

Abstract

With the exacerbation of urban problems and the emergence of concepts of green architecture and sustainability to provide a positive relationship between the building and the environment, this paper presents a case study of the heritage buildings "Tuqan House, Abu Jaber House" in the city of Salt, and their design is based on strategy according to several goals: saving energy, preserving heritage, and improving the quality of the internal environment for users. The paper calls for encouraging the local approach to sustainable buildings that preserve the environment and work to employ natural resources with high efficiency as a means of construction.

Keywords

Al-Salt City, the courtyard, heritage buildings in the old city of Salt, traditional architecture in Jordan, colloquial architecture.

Introduction

Architecture is an interesting experience, through which it is possible to learn about the work of others, analyze it, and understand how the challenges they faced were met (Daher, 1999)

The cultural identity of previous nations and peoples can be identified by entering it through the study of architecture in its various forms and architectural products. One of the features of traditional architecture is the ability to develop and use local building materials and simple construction techniques that represent the era (Alsubeh, 2013).

Therefore, vernacular architecture is dominated by an introverted character, especially in traditional architecture by reducing the number and size of openings in building facades, and the majority of facades overlooking the courtyard and semi-open spaces, and allowing for optimal utilization of natural lighting (Juan M. Rojas,elt, 2012).

The city of Al-Salt was chosen because of its distinguished architectural character, and the influence of the city's topographical situation in shaping the urban fabric. Its heritage buildings are characterized by building style, construction methods, construction materials, and the beauty of their external and internal composition, but they suffer from the pressures of expansion, urban sprawl, and functional change on the other side (Figure 1) (الملكية, 2011).

The traditional building is irregular, and was not subject to pre-planned urban design, rather the work and design were done by people according to their environmental conditions, requirements and needs (Khammash, 1986).

It was built at the beginning of the twentieth century and is one of the heritage features that embody a certain period and the experiences, values and traditions of the peoples who lived in that period and can be described through it. Life in the City, Village and Country (Williamson, 1998) .



1: General view of the city of Salt, Source(Researcher)

What makes traditional buildings different?

Proving its ability to face many weather and natural conditions, and to provide a suitable environment for its residents through the method of construction and the use of porous materials that allow the absorption of moisture and the preservation of the building's temperature through heat exchange through solid stone walls(Oxley, 2015)

Objectives

The objectives needed to be achieved:

1. Emphasis on the need to preserve the heritage buildings of the old city of Salt, as a unique cultural heritage.
2. Working on urban identity.
3. Making heritage an integral part of the economic, social and urban structure of the Greater Salt City Plan (Abusafieh, 2019).

So, it can be said that the importance of this paper stems from an estimate of Mada, and the importance of the study can be summarized as follows, first on the Highlighting the role of the courtyard in improving building quality, designing

spaces, distributing spaces and activities, and allowing natural lighting to reach. Second, Studying the interaction between internal spaces and the external environment that imposes a series of restrictions from the surrounding environment, customs and social traditions. Third, Studying the strategies applied in traditional buildings that respond to the requirements of the climate by providing the highest levels of internal comfort with the lowest levels of energy consumption and improving the performance of the building envelope climate. And preserving the privacy of the building by carrying out many activities for the people residing in this space (A. Michael, C. Heracleous, elt, 2017).

Methodology

This study was based on a quantitative assessment of the effectiveness of vernacular strategies to improve the environmental performance of the building envelope and to preserve its privacy through the courtyard. So, through the application of field and computational investigations, two buildings were selected from the old heritage buildings in the city of Salt: First, Abu Jaber House. Secondly, the Touqan house (Figure 2) (Khaoula Amraoui,elt).




2: Abu Jaber House and the Touqan house, Recourse(Researcher)

Abu Jaber House

The design of the traditional houses came in line with providing a balanced interior environment, and this was strengthened in Abu Jaber house. The use of the courtyard, which is an opening towards the sky, represents a thermal organized between the interior and exterior where the movement of hot air to the top allows cold air to replace it, and the courtyard is characterized by the purity of its air. Providing natural ventilation for the home in addition to obtaining lighting from the sun's rays, and the windows helped in the most benefit from them (Figure 3).




3: The Courtyard at Abu Jaber House, Source(Researcher)

Touqan Hous

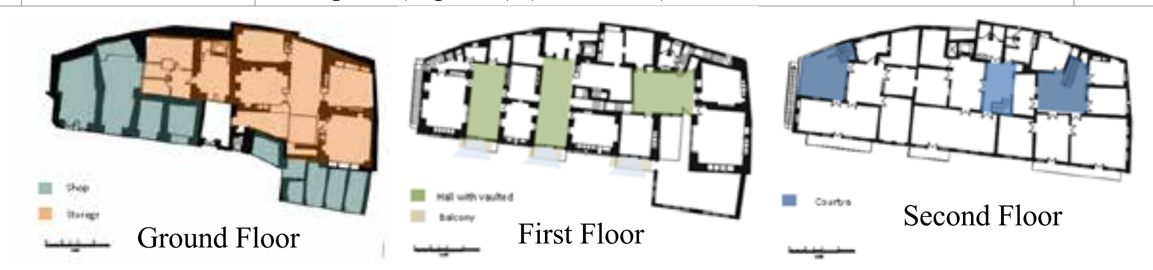
The efficiency of the internal environment of the building relied on lighting and natural ventilation in most of the functional spaces of the residence through the courtyard through windows overlooking the courtyard (Figure 4), see Table 1.



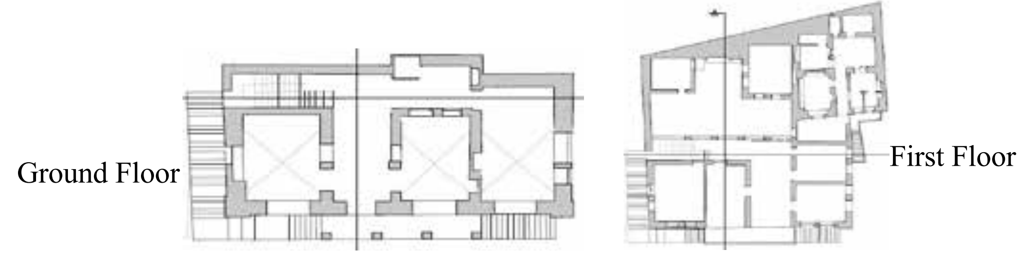
4:The courtyard at Touqan House, Source(Researcher)

Table 1. the names, characteristics and locations of some of the heritage in the city of Salt And year of construction, Source *(2011 ,الحبيس)*

No.	Building name	Site description	year of construction
1	Abu Jaber house	-Ground floor built of solid stone, 60 and 100 cm thick , with vaulted ceilings -he first floor is built of yellow limestone, and consists of three large halls with vaulted ceilings – The second floor consists of three courtyards leading to the rest of the rooms, with a thickness of 30 cm(Figure 5) (الملكية, 2011).	1887 CE 1896 AD 1905 m
2	Touqan building	an area of 170 square meters. It has an open courtyard and seven rooms organized around it. The front façade is characterized by decorative stones and stone columns that resemble Roman columns with the capitals(Figure 6) (2011 ،نسور)	The year 1900 / 1915 CE – during 1910



5: Plans Of Abu Jaber House, Source(Municipality of Salt at the disposal of the researcher



3:Touqan House`s Plans

Results and Recommendations

Results

1. The architectural identity is the product of the architects' ways of linking the built environment with the available environmental resources, customs, traditions and history (Alsubeh, 2013).
2. The building's use of local natural building materials (stone, ton, lime) in the construction process has had the effect of reducing temperature and pollutant emissions affecting the environment.
3. The quality of the internal environment of the building emerged through the use of local materials, the harnessing of natural energies, taking into account environmental and design considerations, and the realization of elements that assist in the communication of internal and external spaces.
4. The building's sustainability features emerged by taking into account the building's orientation and its compatibility with the normative nature and historical values of the region, and its reliance on ventilation and natural lighting in most of its parts through the courtyard and windows.

Recommendations

1. Reducing pressure on the central area of the city
2. Encouraging investment in city development projects and preserving its urban identity
3. Emphasis on conducting a comprehensive survey of the city, a new registration of heritage buildings and their areas, and the development of policies for urban renewal.
4. Establishing a specialized department for these tasks within the municipal formations or urban planning departments.

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THE COURTYARD OF THE INFORMAL CATANIA

SEBASTIANO D’URSO

Abstract

The shape of the city reveals its causes. The city is the memory of the community that built it and reflects the spirit of the reasons behind its construction. Every shape communicates, and irregular and spontaneous ones in particular tell stories that though they do not always contribute to the History of the city they nonetheless characterize its places and environment. Here we focus on the shapes of the informal courtyards of the city of Catania, looking for stories that are still capable of telling us something about this heritage, conscious that this lore may one day be forgotten.

Keywords

Memory, space, community, spontaneous, city.

Introduction

Speculations on pre-existing architectural shapes and their impact on the evolution of the overall architecture of a city, are of interest to researchers and designers due to the precious information they can get out of this knowledge for the construction of the future. A construction that makes sense in the present though rooted in the values of the past. The past, in an age that seems to give value to the present only, is of crucial importance in terms of knowledge that could be lost forever. A look into the past but without nostalgia to avoid anachronistic architectural solutions hindering innovation. Looking into the past therefore to project our vision of the future without having to start from scratch time and again. However, we draw not from an idealistic, grand vision of the past, but from an informal, even modest one, capturing those elements that are seldom found in history books.

Our narration is about this informal side of Catania. A city in the middle of the Mediterranean benefitting greatly from the numerous cultures that have settled and flourished in it. The result is a palimpsest, where several natural events such as Mount Etna’s eruptions and earthquakes too have all contributed to the distinctive elements representing the complex origins and development of the city. Embedded in these elements are also the cultural signs of the city’s daily life since its foundation. The courtyards of the informal Catania in particular, are still teaming with life and cultural events to this day. More than perfect geometries or the symmetry of their

components, it's how these urban spaces are used that signal the presence of a courtyard. Typological classification, though present, it's ultimately less important than their respective sociological and anthropological features as to the role courtyards play in this city. The morphology of these urban realities in fact, is so rich in terms of forms that is arduous to classify them typologically. Often, though not originally designed to be courtyards, some spaces have become such thanks to the spontaneous community activities taking place therein. This positive phenomenon is-paradoxically-often the result of poor urban planning on the part of the local administration. Unfortunately, the line separating what is legal and what's not in these realities, is sometimes so blurred as to constitute a serious problem. However, the case study analyzed below is not one of these, but one that illustrates how spaces and human activities are strongly correlated. This is in fact the objective of these considerations on courtyards and their importance in today's society which is-sadly-drifting toward immaterial relational spaces.

The courtyard of the informal city

Catania like many southern Italian cities is historically characterized by the presence of its courtyards. Scholars of this Sicilian city acknowledge that «both the courtyard for the poor and the gardens or *viridaria* for the affluent were urban characteristics of the city before its reconstruction»[1] which took place after the 1693 earthquake. Courtyards were and still are an outdoor extension of people's homes, where indoor and outdoor activities merge or are seen as a continuum. But informal courtyards were also meeting places, «theaters of solidarity and reciprocal help»[2]. They were

> hubs of "spontaneous" aggregations, also due to the economy that thrived in the alleys where the lower-classes used to live: at the end of the courtyards in fact, there were often some useful "services" available to both families and the community in general, such as stables, ovens, cisterns[3].

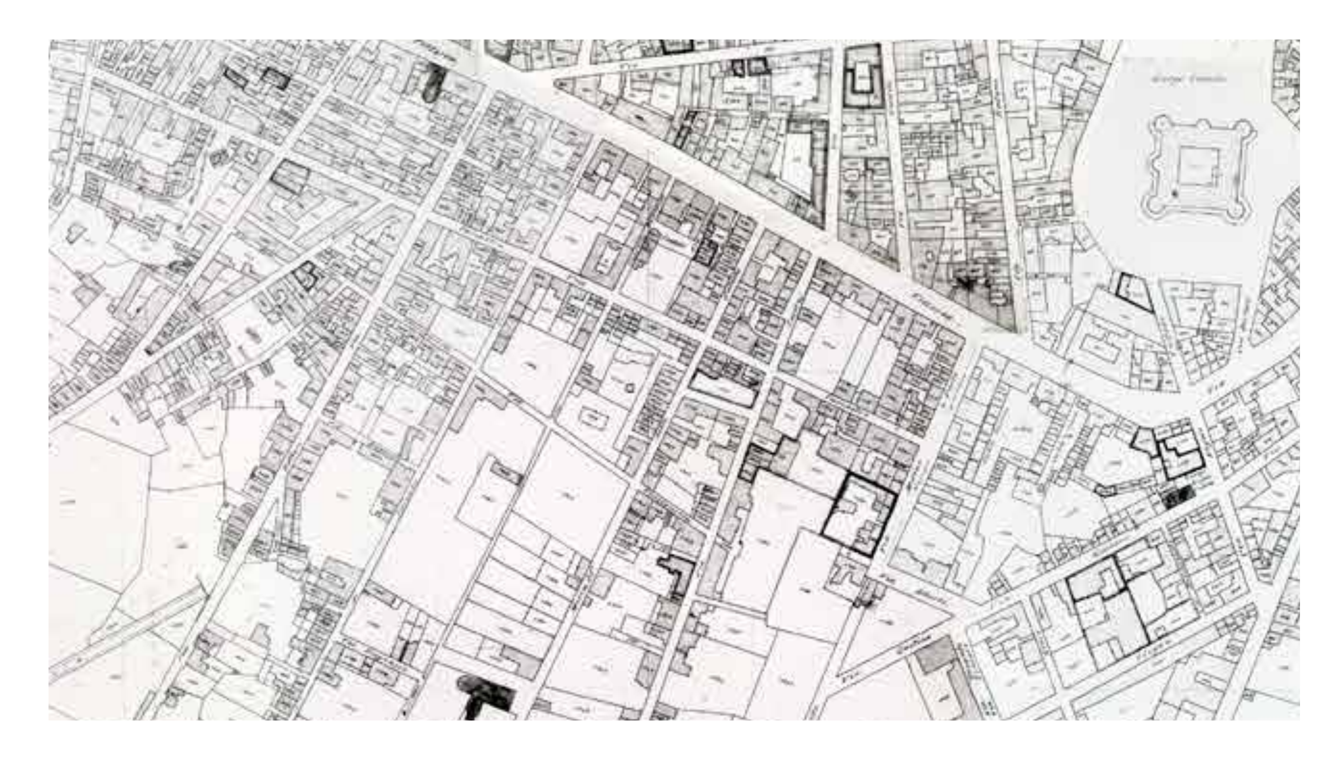
The various types of housing suggest or determine socialization and as a result the city's architecture. This is how Catania's popular neighborhoods evolved, which are quite similar to the majority of informal settlements. However, unlike other cities of the same period, due to the natural catastrophic events Catania experienced in the past, it has seen more than one new beginning, but the role of the courtyard as both residential and socialization point of convergence never ceased. The last beginning

[1] Motta, A., Vittorio T. (2003), *Catania a pezzi. San Berillo – San Cristoforo – Giardino Bellini*, Edizioni Greco, Catania, p. 89.
[2] Ibidem p. 88.
[3] Dato, G. (1983), *La città di Catania. Forma e struttura 1693-1833*, Officina, Roma, p. 96.

took place in the eighteenth century when, first a lava flow (1669) and then an earthquake (1693), devastated the city of Catania. The city was then rebuilt on its rubble and on the “sciara” (the solidified lava flow terrain).



1: Aerial of the neighborhood of San Cristoforo in Catania showing one of the earlier courtyards in Via Testulla, delimited by the name of the streets along its perimeter.



2: Historic cadastral of Catania (1876) detailing San Cristoforo and the courtyard in Via Testulla.

The popular and historic neighborhood of San Cristoforo too was built on the carpet of lava rock of the 1669 Mt Etna eruption. Its streets were designed by means of cantonals. The sciara affects the urban layout as exemplified in Via Testulla, one of the earliest main streets that best represent San Cristoforo. This neighborhood stands out when compared to established forms of city planning as it is characterized by self-built homes which take into account extended family and neighborhood dynamics, typical of a pre-capitalist society.

The building techniques used by its inhabitants and their way of living are epitomized in San Cristoforo's distinctive development, namely, the courtyard. The courtyard is where a way of living is closely tied to their respective community life, originating, according to some scholars, from the island's Islamic architectural heritage. The court-like configuration of the urban blocks in fact, is typical of many areas around the Mediterranean, also for the way such solution optimizes indoor and outdoor microclimate as to be considered-to this day-sustainable.

The housing model that centers on the typical courtyard found in San Cristoforo constitutes a system: it's a network of courtyards that cover a large area of the city bordering several other neighborhoods. Many are in fact the courtyards hidden behind the façades of the historic buildings in Via Plebiscito, the liminal street. More interesting still are those courtyards that constitute an amalgam of residential and economically active micro societies. In both cases it can be observed that though the layout is the same, the evolving community has determined the transformation of some courtyards in order to adapt to today's residential and business demands while others have been abandoned.

Many are the types of courtyards (closed, open, along alleys, square and strip-like) that can be found in the neighborhood. Among these, prominent is the one right at the beginning of Via Testulla, which is perhaps also the earliest one.

Walking along Via Testulla north to south, the first building complex you meet is a courtyard. The corner solution of the factory, a huge cantonal featuring a votive aedicule, seems to evoke the image of a building of great importance but incomplete. Moving away from the corner, admiring the progression of the ancient façades, one discovers the alternate rhythm of doors and windows, hence the original idea behind such architecture and its relationship with the street context. Every residence has its door and window pair, which establishes with the street the characteristic link typical of traditional ground floor houses of small communities and popular areas. At the end of the division of the façade, looking on Via Testulla, the building reveals its double front design. Through a huge gate the visitor accesses the inner courtyard which

features the same alternate rhythm seen from the street where-again-each home displays their respective door and window pair[4].

3: The first courtyard in Via Testulla.



4: Sequence of openings (a door and a window) of the courtyard's façade as seen in Via Testulla.

[4] Fichera, F. (1879), *Salubrità, igiene e fognatura della città di Catania. Studi e proposte*, Tipografia C. Galàtola, Catania, pp. 128-129.



5: Cantonal with votive aedicule of the courtyard in Via Tesulla, between Via delle Calcare and Via Testulla.

Today the same unchanged rhythm, despite important transformations with respect to the original design (doors have been closed, windows have been added, houses have been joined together, others abandoned), displays its expressive power through its linear sobriety. Its anthropological value too remains unchanged in terms of system of relations. An evolving reality that though existing in a sort of enclave remains open to socialization and exchange. The modernity of the courtyard could therefore offer a solution to today's urban discontent but, as it is happening in Via Testulla, it seems that the fate of the courtyard too is sealed.

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THE INNER COURTYARD IN THE ARCHITECTURE OF MESOPOTAMIA

SHATHA ABASS HASSAN

Introduction

The central courtyard is a spatial element that was not limited to residential buildings only, but is almost an essential feature in all other architectural forms, and the beginning of the appearance of the courtyard was external at the emergence of architecture, as a result of the development and complexity of life, the courtyard became an identity expressing the importance of architecture, so the central courtyards had regular geometric shapes, and thus the courtyard turned into a design focal point for the formation of Mesopotamian architecture, and the courtyard gradually transformed from an architectural element of the architectural unit to a linking element between several different spaces, and this was The event is a prelude to transforming the courtyard into a design element in the urban formation, not just the architectural one.

The beginning of the appearance of the courtyard

When the primitive spatial formation of the Mesopotamian dwelling modified from circular to orthogonal, (with the appearance of the brickwork as a structural unit), there became flexibility in assembling and repetition around the front yard, so it was surrounded by an external wall that defined the meaning of the inside and the outside, and that was the beginning of the emergence of the courtyard, but it is still external, Figure (1) .

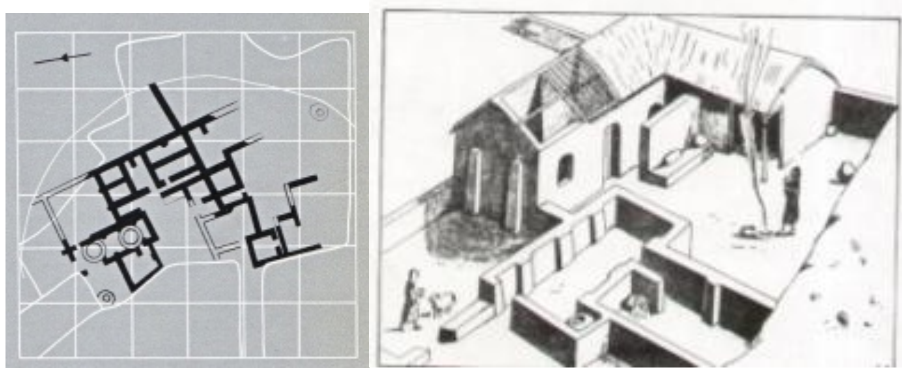
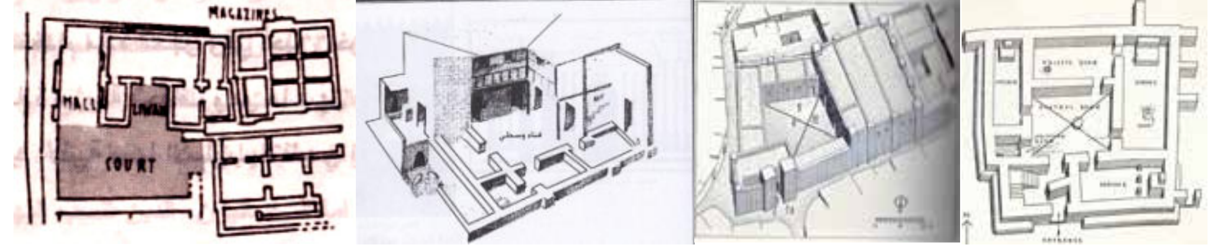


Figure (1) Plan of a house in Tell Hassouna An imaginary depiction of a house in Tell Hassouna

Sumerian courtyard

An imaginary conceptualization by some researchers of the Mesopotamian House in its first floors within the Sumerian era, as it contains a central courtyard surrounded by the rest of the spaces, and this courtyard provides the upper and ground spaces with natural lighting and ventilation.
The courtyard became clear as a transitional space that preceded the sacred space and a major distributor of movement and events, in addition to defining and distinguishing the entrance space, as in the Temple of Sin in Khafaga during the Sumerian era. In it are the daily activities, and the refracted entry into this courtyard, and from it the movement is distributed to the rest of the spaces.
As in the Temple of Abu in Tell Asmar, It was observed in the oval temple during the Sumerian period, two courtyards, one of which is external and the other internal, and it is at a higher level than the first, as was found in the complex of the Palace and Temple of Sushan from the same era, and the Palace of Mayslam in Kish, and the Palace of Naram Sin in Tell Al-Barak, (within the Akkadian period), as it is clear The presence of a main courtyard and a smaller secondary one, Figure (2).



Tabat Kura residence, depicting a multi-storey house in Ur, Sin temple in Khafaga, Abu temple in Tell Asmar.

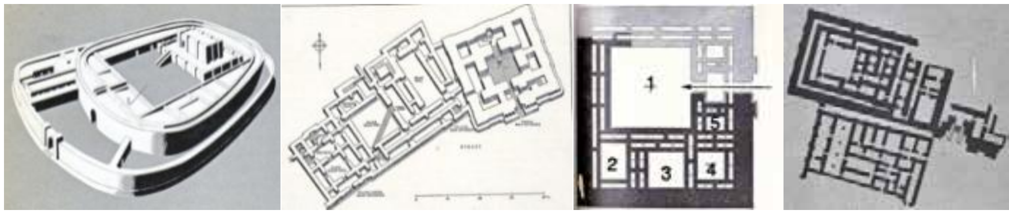


Figure (2) The Oval Temple, Palace Complex, Sushen Temple, Naram-Sin Palace in Tell Al-Barak, Mayslam Palace.

Babylonian courtyard

The residential house with a central courtyard reached the peak of its development in terms of space formation in the ancient Babylonian era, where the side entrance is broken and leads to the inner courtyard, as a distributor of movement, or its inner courtyards according to the capacity of the house.
The appearance more than one courtyard in the Babylonian temples to embody the idea of the temple complex. These courtyards are linked to each other by transitional spaces connecting (The Between Space), In the Temple of Ishtar, we notice the appearance of the pillars merging with the wall and protruding from it and overlooking the inner courtyard. Perhaps this was the beginning of the movement towards establishing the portico as a transitional space, and a grouping of the basic units appeared around the courtyard and the beginning of the appearance of the portico around it in the Babylonian palace.
The Babylonian palace in Korikalzu (Akarkov) consisted of six basic units gathered around a large square central courtyard whose corners were directed towards the four main directions, with the presence of other secondary courtyards. Bases of columns surrounding an open courtyard mark the beginning of the emergence of the portico as a transitional space between the closed space and the open courtyard, Figure (3).



Figure (3) Babylonian House, Ishtar Temple in Babylon, Korekalzu Palace Plan in Akarkov.

Assyrian courtyard

The appearance of the outer courtyard (Iwan) in the Assyrian house, as it was noticed the gathering space to which the rest of the spaces of the Assyrian house open from three sides, similar to the Iwan, open to the outside from its fourth front side, and it is considered the main distributor of the spaces of the house from which the Iwan developed.
The open inner courtyard was clearly observed in the double temple, the temple and the ziggurat of Nikolti Ninurta, as one enters the open courtyard and from there one moves either to the upper temple (ziggurat) overlooking the courtyard, or to the earthly temple (around the courtyard), and the multiplicity of courtyards continued in Sargon's palace They are linked together by nodes and transitional spaces, noting the presence of pillars protruding from the wall and surrounding the main open courtyard, note Figure (4).

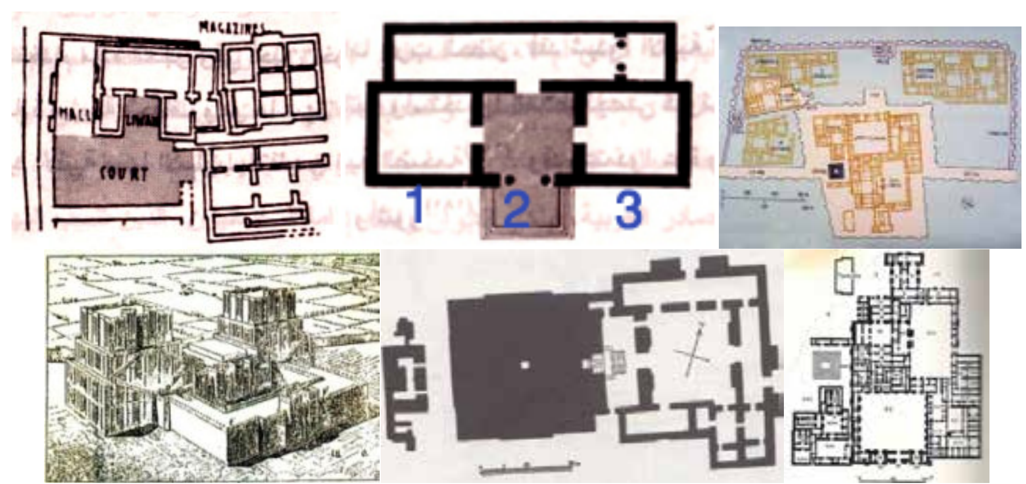


Figure (4) dwelling of Tabat Kura, Helani housw in Assyria, Sargon's palace, the double temple in Assyria, Nikolti-Ninurta's temple in Assyria, Sargon's palace in Khersabad.

The Courtyard in the Neo-Babylonian Period

At this stage, the mass appeared in the middle of the open courtyard in the modern Babylonian temple, and we notice in the Marduk Temple that the ziggurat (Tower of Babel) with its seven layers is in the middle of the open courtyard surrounded by an external wall punctuated by gates, So is the earthly temple, as it mediates the other courtyard designated for it.

With the multiplicity of courtyards and their capacity in the Neo-Babylonian era, in the palace of Nebuchadnezzar (the southern castle), it consists of a large main central courtyard overlooked by the throne room through three entrances, surrounded on both sides by two courtyards on each side. The basic planning unit of the palace consists of a central courtyard and a transverse hall surrounded by secondary corridors. The palace is composed of a repetition of five planning units, this was called a cellular formation consisting of a main courtyard to which the rest of the spaces open. This formation continued even in the architecture that followed the fall of Babylon.

The continuation of the cellular formation of the Mesopotamian palaces after the fall of Babylon. The spaces of the Seleucia Palace were distributed around several courtyards and a basement. Each unit had a main reception space preceded by two or more columns on its rib open to the courtyard. This formation was previously seen in the House of Helani in Assyria, which contained a reception space preceded by two columns, Figure (5).

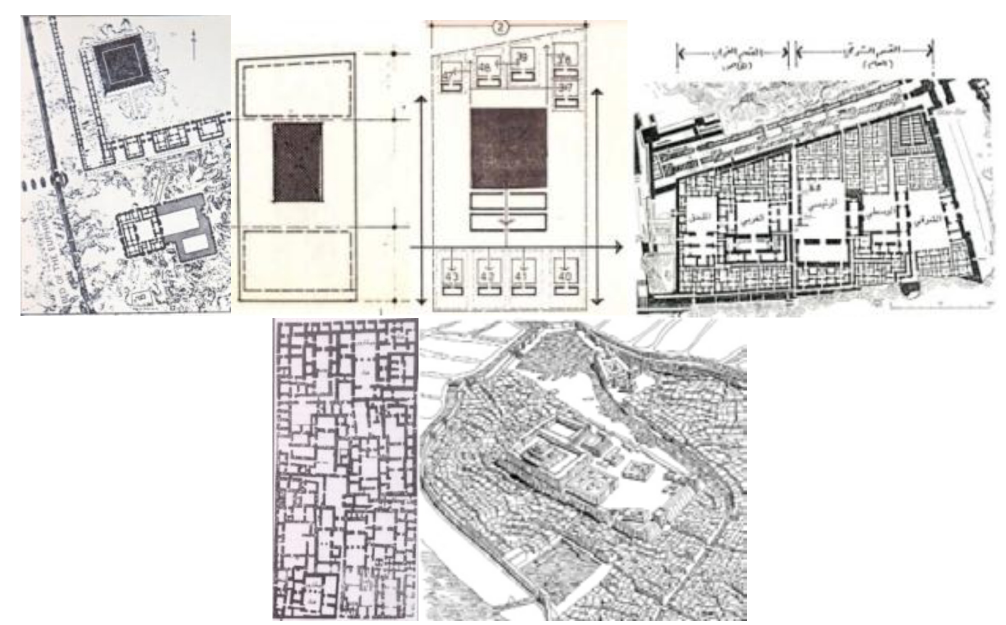


Figure (5) Plan and model of the Temple of Marduk from the Neo-Babylonian period, Seleucia Palace.

Entering the courtyard in the Babylonian theater, as it entered the theater as a new building pattern that was able to employ the cellular Mesopotamian formation (with an open central courtyard) to include the sports stadium spaces and merge them with part of the spatial formation of the Greek theater, which is a good example of the overlap of the overall Mesopotamian styles with partial Greek.

Courtyard in the Kingdom of Hatra

The view of the iwan was on the inner courtyard of the house in Hatra, the house in Hatra remained preserving its ancient Mesopotamian space formation in its orientation towards the central courtyard, the refracted side entrance, and the clarity of the Assyrian iwan space, which was observed in the House of Hilani in Assyria, overlooking the courtyard, where the most important spaces of the house open to it. opposite, overlooking the inner courtyard. Colonnaded arcades were also observed surrounding another inner courtyard within the same palace, and in Nafer Palace as well, the colonnaded portico was very clear in its surrounding the open courtyard and represented a transitional space between the outside and the inside. Figure (6).

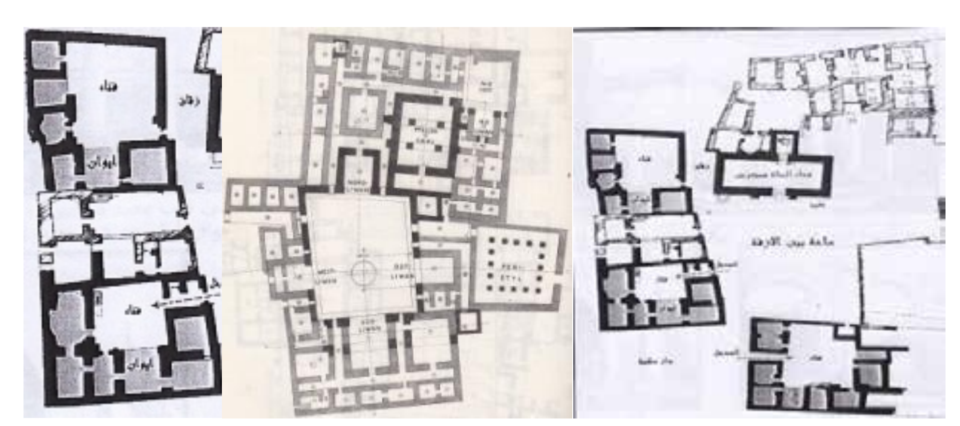


Figure (6) Residential urban homes, the palace with opposite courtyards, the palace in Nafar.

As for the Assyrian house in the middle period, which followed the fall of Babylon, it is a natural extension of the Assyrian house within the ancient Assyrian era, with the clarity of the iwan space overlooking the inner courtyard (after it was open to the outside). The Mesopotamian house maintained its Mesopotamian style in its orientation towards the inner courtyard, with the clarity of the iwans overlooking the courtyard. Those corresponding iwans were observed in the role of the residential cities, which is an extension of the palace of the corresponding iwans in Assyria. A new functional style appeared in the Mesopotamian religious architecture. It is monasteries and churches, with the emergence of monotheistic religions after the disappearance of pagan religions in the Mesopotamia Valley, so the need arose for the emergence of spaces that accommodate collective worship, (prayer), so the open inner courtyard, to which the spaces of the monastery and the church open, was often surrounded by a portico and an iwan overlooking it, figure (7) Described for a house in Assyria, Al-Madain, Deir Al-Obeid, and the Church of Tikrit Castle.



Figure (7) A house in Assyria, a house from al-Madain, the monastery of slaves in Tikrit, the church of Tikrit Castle.

The courtyard in the Kingdom of Al-Hirah

The spatial formation pattern based on the orientation of the spaces towards the open inner courtyard reached the peak of its development in the palaces of Al-Hirah, as stated in the descriptions of travelers, where the open inner courtyard was one of the elements of the formation of the triple Al-Hiri style, where the courtyard forms the heart of the triple formation surrounded by the right and left, as side spaces

overlooking the This courtyard through the iwans and arcades, which represent interconnected transitional spaces, continued this formation in the Mesopotamian architecture after the Islamic conquest, Figure (8).

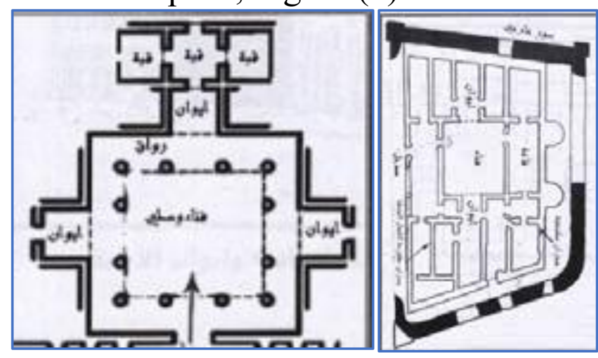


Figure (8) Conceptual plan of Al-Sudair Palace, the discovered palace in Al-Hirah.

The inner Mesopotamian courtyard within the Islamic period

The continuation of the orientation towards the inner courtyard in the Islamic palaces: It is clearly noted that the continuity of the central courtyard being the main distributor of movement and the presence of the iwans and porticoes overlooking it as space nodes linking the public and the private, note Figure (9) showing the house of the Emirate of Kufa, Qasr al-Hayr al-Gharbi, Khan al-Atshan, Qasr al-Iskaf, And the palace of Al-Ukhaidir.

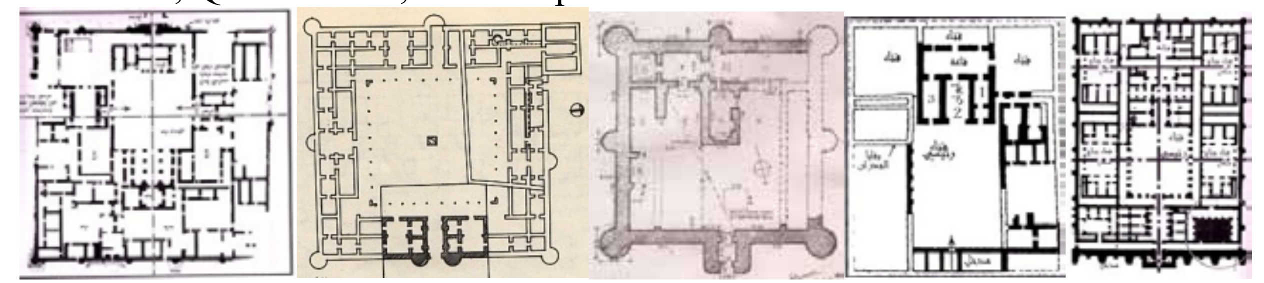


Figure (9) The Emirate's House in Kufa, Al-Hayr Al-Gharbi Palace, Al-Atshan Khan, Iskaf Bani Junaid Palace, Al-Ukhaydir Palace.

The multiplicity of courtyards and the repetition of the trible formation units overlooking them, as Al-Ukhaydir Palace relied in its formation on the repetition of the basic planning unit consisting of a triple formation overlooking an inner courtyard, and the repetition of these spaces around secondary courtyards and a large main courtyard that connects the entrance to the palace with the throne hall, in the middle of the palace is an external courtyard surrounded by three On the sides, it is surrounded by a reinforced wall, as it was observed that the triangular formation overlooks the inner courtyard of the Iskaf Palace of Bani Junaid during the Umayyad period.

As for the inner courtyard in the Mesopotamia Mosque, it is the main space of the mosque. A new functional style appeared in the era of early Islam, the mosque, which is an open space for performing congregational prayers. It is not surrounded by any mass except for the colonnaded arcades on all sides, surrounded by the reinforced

outer wall, which is permeated by the gates of the mosque, in the form of (10) The description of the Kufa Mosque, the Wasit Mosque, and the Mansour Mosque

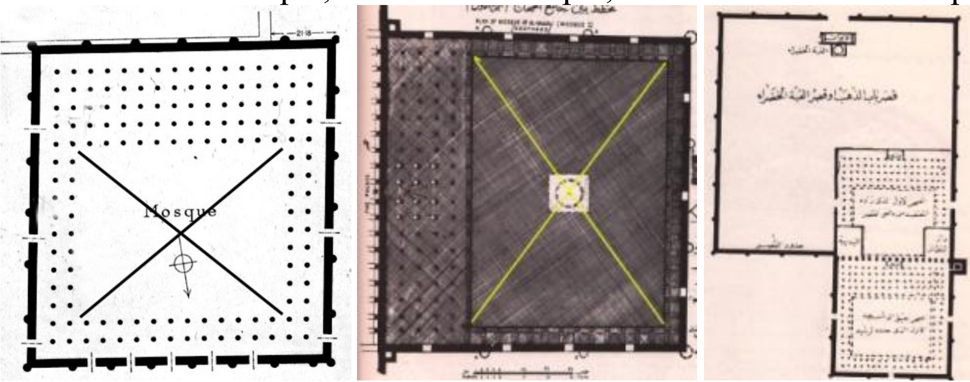


Figure (10) Kufa Mosque, Wasit Mosque, Al-Mansur Mosque in Baghdad.

The continuity of the courtyards in the Abbasid palaces is inferred from the indications that described the palaces in Baghdad during the first and later Abbasid eras, which included large, main and secondary courtyards and gardens surrounded by galleries and overlooking them, but this internal orientation is subject to an external orientation, especially in the Baghdad palaces, where The external orientation towards the Tigris River through Misnat and towards Hayr Al-Wahush and the outer orchards, and the courtyard continued to dominate the spatial formation of the mosques of Samarra: the open central courtyard remained a major element in the formation of the mosque, but it became elongated as it is located at the end of its longitudinal axis on both sides of the mihrab and the minaret of the spiral, as well It is the mosque of Abu Dalf, Figure (11).


Figure (11) Al-Mutawakkil Mosque in Samarra, Abu Dalif Mosque in Samarra.

The inner courtyards that make up the palaces of Samarra continued, and the trend towards the inner courtyards continued in the palaces of Samarra. In Qasr al-Jus, there are four main courtyards forming a quadrilateral division of the palace, from which smaller courtyards extend. Likewise, the inner courtyards continue in the residential houses of Samarra, as they are an extension of the Mesopotamian residential houses that depend on the orientation towards the inner courtyards. However, it is more spacious than its predecessor, as we have received more details about its internal processors, Figure (12).

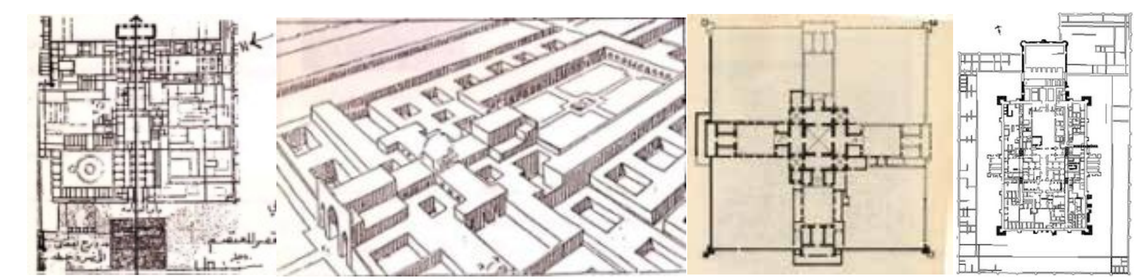


Figure (12) Bab Al-Aamah Palace, Balkwara Palace, Al-Jus Palace, and the Al-Ashiq Palace.

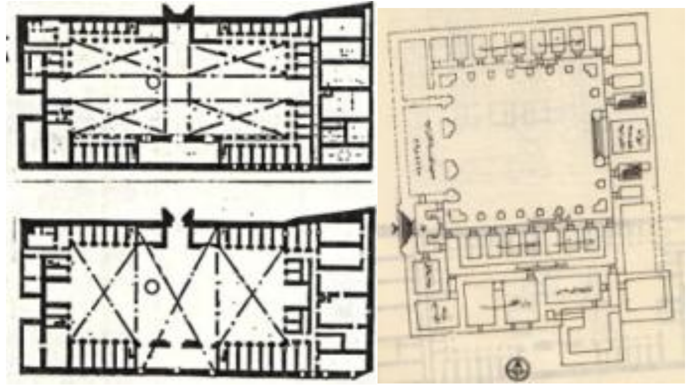


Figure (13) Al-Mustansiriya School, Abbasid Palace in Baghdad.

The inner courtyard in the late Abbasid era

A new functional pattern appeared in Mesopotamian architecture, which is the school, as it is shaped according to the orientation towards the interior as well. The central open rectangular courtyard was the main distributor of movement, and the rest of the spaces of the school overlooked it with its ground and upper floors, through the corridors and the halls that acted as transitional spaces linking the public exterior and the private interior. The entrance is lateral and perpendicular to the elongation axis of the school's shape. As for the Abbasid Palace (Dar al-Masnat), it is based on the same principle in directing its ground and upper spaces towards the open central square courtyard surrounded by colonnaded porticoes and iwans open to it from all sides.
The inner courtyard continued in the school and the khan after the fall of the Abbasid caliphate: the inner courtyard continued to dominate the spatial formation even over the functional patterns that were built after the fall of the Abbasid caliphate, such as schools and khans. to the courtyard of the khan, figure (14).

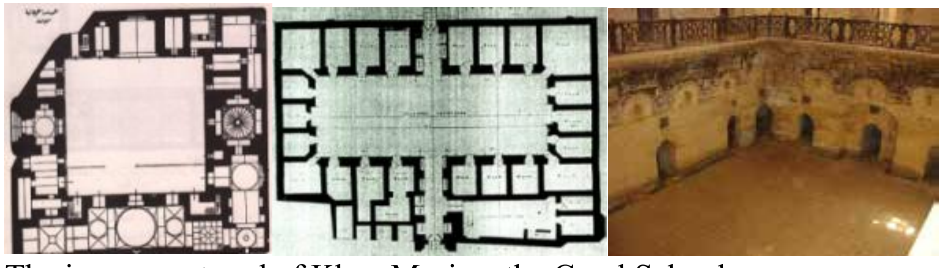


Figure (14) The inner courtyard of Khan Murjan, the Coral School

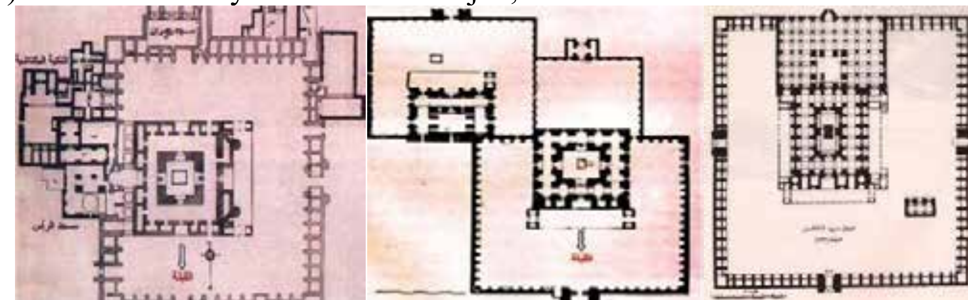


Figure (15) The Purified Supreme Presence, The Purified Military Presence, The Purified Kadhimiya.

The inner courtyard of government buildings

A new element appeared in Mesopotamian architecture in the nineteenth and early twentieth centuries, which is the government saray and the Qishla. It was built on the basis of a formation oriented towards the inner courtyard, open to the rest of the spaces in the building, with its ground and upper floors through the arcades surrounding the courtyard, which are like transitional spaces that connect the public with the private and the interior Outside.

The inner courtyard of the residential house

The inner courtyard has become a major element in the spatial formation of the Mesopotamian House, as it is based on the orientation of its spaces towards an open central inner courtyard, which is accessed through a broken side entrance, and from there to the rest of the ground and upper spaces through roofed shutters that carry the upper balcony overlooking the inner courtyard, Figure (16).



Figure (16) Mesopotamia House in its late stages.

Conclusion

The ancient Mesopotamian space began with a simple one that did not contain a transitional space or nexus nodes, because the primitive space did not have any flexibility in assembly and expansion. However, after the technical development, the wages appeared as a structural unit. The spaces gathered around a forecourt, (an outer courtyard), surrounded by a wall that defined the meaning of inside and outside, and this was the beginning of the appearance of the courtyard, but it evolved from being external to becoming an internal transitional space that connects the inside with the outside and the spaces move around it, and that was in the Sumerian era, and it crystallized in the Mesopotamian palaces and there became more than one courtyard. And it continued as a distinct spatial style of Mesopotamian architecture even after the fall of Babylon and the beginning of the Islamic conquest, and continued to the late stages of Mesopotamian architecture. And in all space patterns, such as residential homes, state homes, places of worship, and the rest of the other service functions, in line with the constant environmental influence.

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SPATIAL FRAGMENTATION DEVICES

SILVIA DALZERO

Abstract

The research involves architecture and urban heritage studies in order to completely trace the characteristics of the fortification plans of the limit and carry out a wide-ranging assessment of the territory and its changes.
In this way, a reflection is outlined on the possible redefinition of fortified areas as a common good in order to implement a design of near future architectures and cities aware of the formal and structural metamorphoses linked to the physical closure of the limits which opens crises, produces oscillations and systems antinomian settlements.

Keywords

Wall, Border, Architecture, Urban, Division.

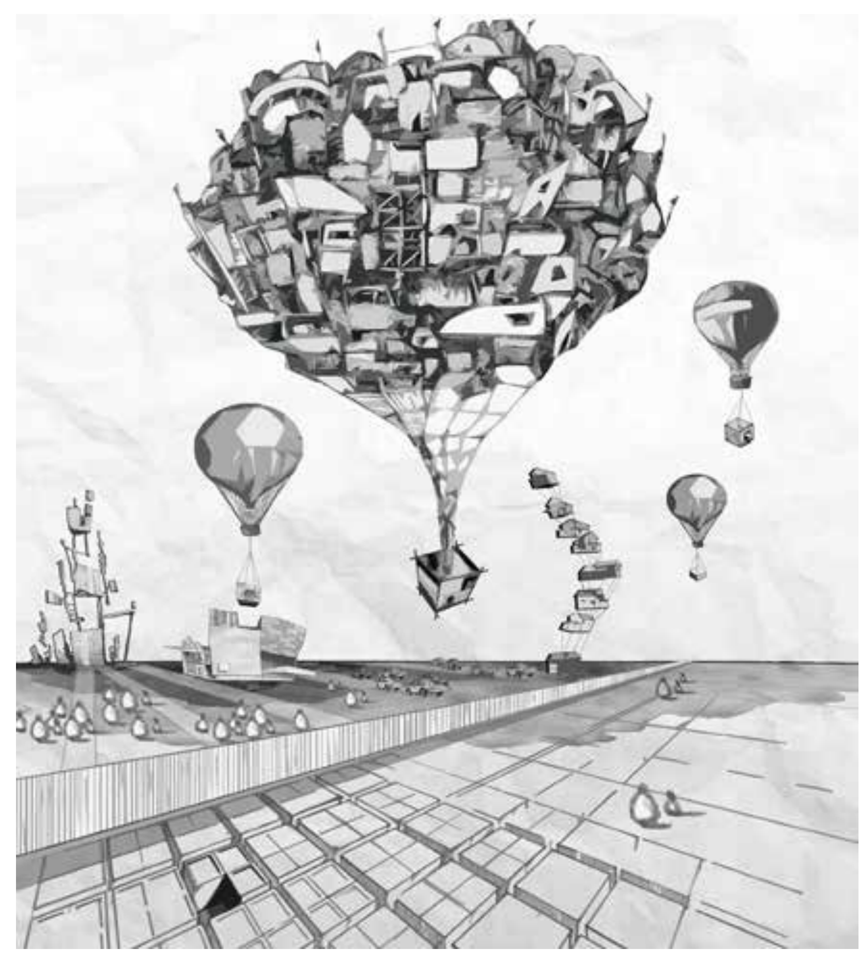
Introduction

The city is a text, a "fabric" and as such it can be crossed. Roland Barthes said that whoever crosses a city finds himself in the same condition as the reader of an avant-garde text. An uninterrupted and fluent repetition of the same realities doesn't tend to reduce complexity, to cancel conflicts, but rather assimilate them to the point of feeding on them. A condition, that of the city, which recognizes form and structure broken into systems that are always the same. There are places of silence, with nothing to say, lifeless, or just become the simulacrum of a life that is no more. There are places narrated as cages that trap (with no exit)to which one inevitably returns. Places change their face over time, vanished places that you can't get hold of except to jump out of them, perhaps to an elsewhere that in turn expresses the places of desire, those dreamed of, those where we would like to be, where the stories, continuously, they begin and they end. Therefore, the city, in its continuous transformation, always proposes the same equal and indistinct system: the historic center and its walls, the park and its limits, the industry and its enclosure, etc. In this continuous alternation of different areas crises, and fractures open up, oscillations are generated, and oppositions become the matrix of a new settlement topography in which ancient "figures", such as walls or fences, replicate themselves in a caricatured and extreme form.
Cities and territories in general are marked by margins that people feel when they walk, which can give the sense of going home or "going for a walk". Differences in density can appear, passages from one field of forces to another, sometimes perceiving the

threshold as a reality that can be crossed, and sometimes, instead, as a barrier: dangerous, hostile, mysterious.
The present study does not seek an exhaustive character of the architectural-urban plan in the field of courtyard architecture but to interpret the role of architecture and territorial transformations linked to the process of spatial division and fragmentation.

The wall is always a wall

Starting from the courtyard building, the limit reveals itself as an architectural device that, in the current landscape, takes relevance along the increasingly closed and fortified State borders. In an alternating game of scales one could say that the courtyard building, the “ghetto” on a racial-cultural basis as well as the fortified border of states and nations lend themselves controversially to their fundamental principles, proving to be tools for dividing and impoverishing quality of space and of the mobility.
The wall is a wall always, but its reasons and implications are different. It can be arranged to protect or delimit a domestic environment, an industrial area or even isolate people on an economic-social basis and not only. The basic thesis of the research is that, in the current panorama, the geography of the world is subjected to upheaval, to a real metamorphosis that presents architectural forms dictated by interests of control and security. Architectures that have repercussions on the territory at different scales and in any case are predisposed to divide, as well as interrupt infrastructural connections and urban structure.
This progressive construction of the limit and consequential territorial fragmentation causes an architectural-urban change which, on a spatial scale, distinguishes the border areas as archipelagos of islands that shape the contemporary space and suggest new ways of making and thinking about architecture today. Indeed, the border wall proves to be an architectural device that becomes the matrix of an antinomic and oppositional urban construction. It appears inside and outside, a circumscribed and an open one, as demonstrated by the buildings in the courtyard but also, in the long-range, by the closed settlements such as gate communities and camps set up on national borders. In particular, the camps could be described as "spaces of suspension" where the migrant waits, catapulted into an "elsewhere", in a place "outside" of the territorial legal system and which in the first act of division (the wall) recognizes the formal element and the primary reason, of control and security.



1: Decompose to Sectorize. (imm. Dalzero, S.)

Decompose and Sectorize: “Spaces of suspension”

In the area of the limit, all flows are controlled and the entrance door, as a threshold, proves to be an ordered machine to decompose and sectorize the single elements of which it is composed (not only objects but also individuals) and which recomposes in a generic way to exclude in “suspension spaces”. In short, the border proves to be interactive architecture: it changes according to the subject who crosses it and it reveals itself, more or less, porous (materializing or vanishing) according to social, cultural or national affiliation and consequently enclosing and excluding the Other. At this point, a world geography appears that is falling apart and proposing a new method of architectural-organizational construction: shattered, discontinuous, chopped into a thousand and more parts and not only on a large scale but also within individual architectural elements that refer to the idea of a courtyard and of a “completed” structure. It is known, in fact, that the "continuous" spatial system does not establish any center and neither rests on fixed barriers, rather it is without an "inside" and without an "outside" and is based on a relationship free from the binary divisions produced by barriers that are erected everywhere today.

Indeed, the base of the thesis is highline this antinomic game between an "inside" and an "outside", between a system of inclusion and one of exclusion which describes the spatial ordering of the limit and of which a “key” emerges from the study by Agamben who, in «*Homo Sacer. Il potere sovrano e la nuda verità*» (Einaudi, Torino 1995)[1], elects the "Campo" to "Nomos", in the meaning of the greek word from which all the other criteria of measurement and primary spatial occupation derive. So the refugee camp, set up along the borders, can be understood as: "space of exception", in its being placed outside and in which what is excluded in it is included in its being an exception or, included through the same exclusion. Then, the construction of the limit leads to thinking in dual terms and consequently to mobility and immobility as bivalent aspects of the “same coin”.

A study case: the Wall Israel-Palestine

An exemplifying case of this falling apart of the architectural, urban and territorial system is the Israeli Wall whose layout does not represent a political-administrative border commonly understood but becomes a war machine aimed at the conquest of territory which determines a territorial fragmentation of the West Bank. We can see circumscribed Israeli settlements which, like "settlement bubbles", subtract land from the Palestinians and, among themselves and with Israel, are connected by an infrastructural system that breaks up the Palestinian territory and expels its inhabitants. This plans to build the border, carried out by Israel, is the most evident example in which the act of closing the limit has repercussions (in a fragmented form) on the facing land (in a fragmented form), revealing itself as a localization and relocation device that is able to governance the space and the movement of people. Clusters of, formal and informal, settlements, compete in a combined game of references which becomes increasingly articulated and which recognizes the Palestinian-Israeli land as a territorial archipelago. In particular, the cluster organizational image is manifested where the Israeli settlements take a concentric structure, completely closed by fences, and refers to the architecture of prisons. So, we observe the “patchy fragmentation” of the territory which also emerges in other places from the border fortifications. Formal and informal, stable and unstable settlements are formal matrix that discovers antinomic and multiple structures, in which everything is the opposite of everything and which characterize the border region. Ultimately, beyond the differences and single motivations that cause the closure of the limit, to isolation and mutual exclusion, the antinomic game of action and reaction that "comes from the wall and goes to the wall" is awarded by all as a will to check the other. Entire parts of the city, neighborhoods, settlements, houses and private areas respect this binary aspect that today characterizes the border area.

[1] Agamben, G. (1995). *Homo Sacer. Il potere sovrano e la nuda verità,* Einaudi, Torino

Conclusion

The same words-materials-forms, the same grammars-infrastructures-relationships belong to a new way of architectural-urban construction that seems to overturn and catapult the contemporary border scene into a vortex of barriers and walls only able to defend and to defend themselves. There are those who barricade themselves to protect themselves from possible occupations or war attacks; there are those who isolate themselves in order not to "see", to differentiate themselves in relation to social or legal-administrative differences, and more. In short, everyone wants to divide and isolate themselves. There are controlled entrances, border guards, and walls and these are a few words in today's lexicon. They are nothing more than devices used to monitor the territory and to keep outsiders away who can do nothing but have spatial repercussions and envisage, at different scales, a way of architectural-urban construction, always the same and always different which leads us to think of an archipelago of islands, more or less, connected to each other. Architectural islands appear in different ways and reasons but still declined to the desire to operate a sort of binary contrast being, depending on the case, formal or informal, stable or unstable, improvised or planned, etc.
This explains the basic thesis of this study which wants to detect and demonstrate the architectural-urban state of a world which, in recent years, has been engulfed in a short circuit that declares nothing except that the promise for a world global «liquid» (as Bauman, Z. said)[2] reveals its exact opposite. The ghostly and labyrinthine nightmare of walls, barriers, defensive devices, waiting for areas, and settlement "bubbles" appears. In short, rather than losing the limit, the world is engulfed by it. But as we know, opposites attract and one does not exist without the other: antinomies that outline the peculiar character of the fortified limit (whether of courts or borders) and which always prove to be the same and always different. Fortified limit that narrates, on several scales, the same story made up of walls and divisions whose spatial repercussions identify forms and structures in which opposites coexist and outline unprecedented urban-architectural-territorial realities outlining an idea of Proto-city in which the "suspended spaces" are confirmed as antinomies and acquire urban-territorial meaning and value.

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THE FUNCTIONAL VALUES OF THE COURTYARD AND THEIR IMPACT ON THE SPACES OF THE INTERIOR ARCHITECTURE ELEMENTS IN THE HOUSES OF THE COASTEL CITY OF RASHID

SAMY MOHAMMED ABU TALEB NADA

Abstract:

The city of Rashid was one of the cities that played an important role in Egyptian trade throughout the ages due to its location and because of overlooking the entrance to the Rashid branch, one of the branches of the Nile Delta, as in figure (1,2,3). It became the closest city to Istanbul. Ships were returning to it loaded with goods from Europe. The city of Rashid became one of the cities with special architectural styles and was distinguished by the spread of its various buildings.

Key words:
Mashrabiyas, Darqahs, Ewan, Rawashen, Visias.

Introduction:

The city of Rashid maintains many of its monuments that were built in the Ottoman era, which numbered 22 houses, a public bath and a mill, in addition to eleven mosques, an oratory, and three shrines. The monuments included the remaining twenty-two houses, which are still standing today with unique features that the natural conditions had a great impact on. This is because the city is close to the Mediterranean Sea and the amount of precipitation increases in the winter. This is in addition to the economic conditions that this city was in and the urban planning conditions that were initially determined by the organization of the streets and the crowdedness of the city. All these factors caused the areas allocated for construction to become very small, unlike the houses in Cairo built in the same period. You will find that all these natural, economic, and urban conditions had a clear impact on the characteristics of the houses of the city of Rashid and its general form.

The designers of the Rashid buildings of that period employed the architectural design of the Rashid houses using the concept of the courtyard to provide optimal comfort related to the thermal environment. Out of the twenty-two houses, the inner courtyards were found in seven houses that are still standing until now.

The use of internal courtyards in Rashid's houses was of great importance and multiple functional values for the residents of those houses. The architectural designer of that period was able to exploit the relatively "static dissipation" system in the courtyards as in figure (17,18) in introducing modifications in the architectural design of the houses to generate movement in the air due to convection. In hot, dry areas. the temperature drops a lot after sunset, due to the Earth's re-radiation of heat to the sky at night. The air is relatively free of water vapour that can reflect thermal radiation or infra-red rays back to the Earth again, as what happens in warm, humid areas.

When the evening comes, the warm air of the courtyard, which is heated directly by the sun and the courtyards indirectly, begins to rise. It is gradually replaced by the moderately cool night air that comes from the heights and collects the moderately cool air in the courtyard in layers. Then, it flows into the surrounding rooms and cools them. In the morning, the air that is shaded by the four walls of the courtyard and the air of the surrounding rooms begin to gradually heat up slowly. However, its coolness remains moderate until late in the day, when the sun shines directly inside the courtyard. The warm winds that blow over the house during the day enter the courtyard unless beams are placed to change its course. The effect of these beams is limited to creating opposite currents inside the yard, and in this way the yard acts as a reservoir for coolness.

This is due to the narrow spaces that were allocated for the construction of the Rashid houses Fig(9,10,22). As a result, the designers of Rashid houses tried to achieve the idea of open courtyards Fig(17,18,19,20), which are overlooked by the spaces of all the rooms of the upper floor. Through the multi-shaped openings in the ceiling of the darqahs , the darqahs functions as an open patio Fig(4,5,6,7,8), on which the room spaces open. Thus, the architectural designer added another courtyard that helps the backyard of the house

The narrow, winding streets that open visias with closed ends perform the same function as the courtyards of the houses, and this is what happens in the planning of the city of Rashid.

Thus, the significance of planning the city of Rashid, which is represented in the narrow streets and courtyards established in the houses, became clear. This planning had the greatest impact in providing clean, healthy, reasonably cool air for the residents of the city of Rashid. It achieved its important functional value that resulted from the informed planning of that city, which has proven successful in the modern era of networked orthogonal planning in broad streets.

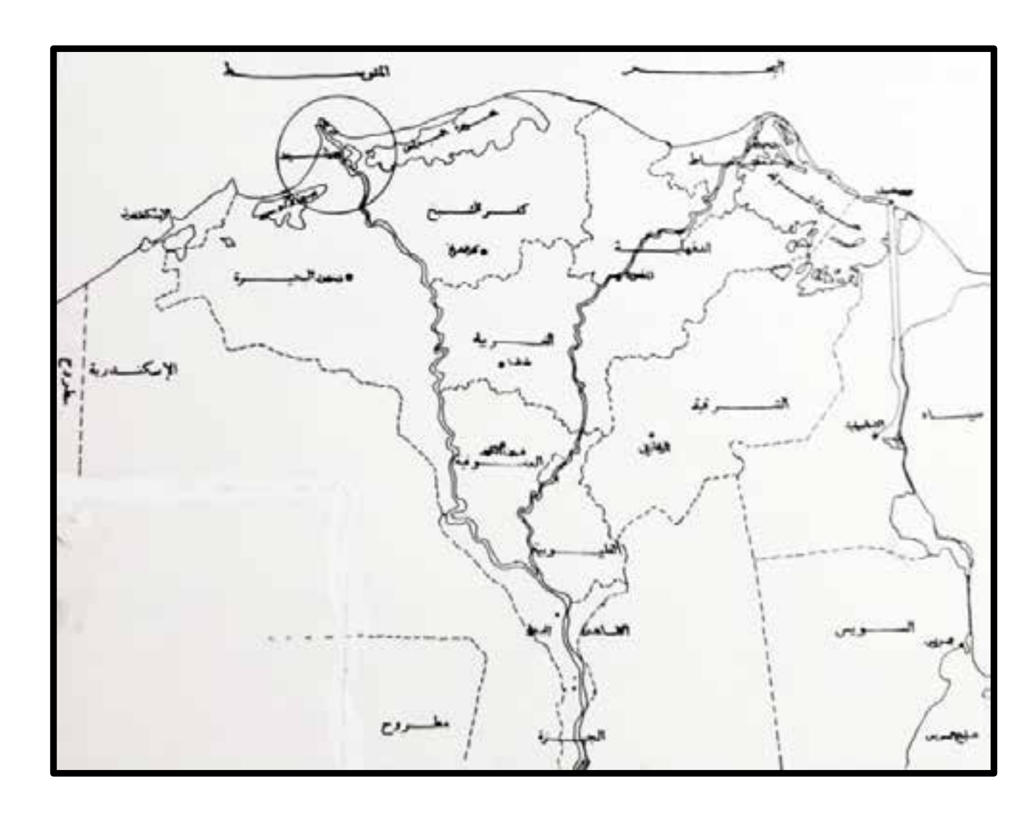


Fig (1): The location of the city of Rosetta, north of the Nile River Delta, overlooking the Mediterranean Sea.

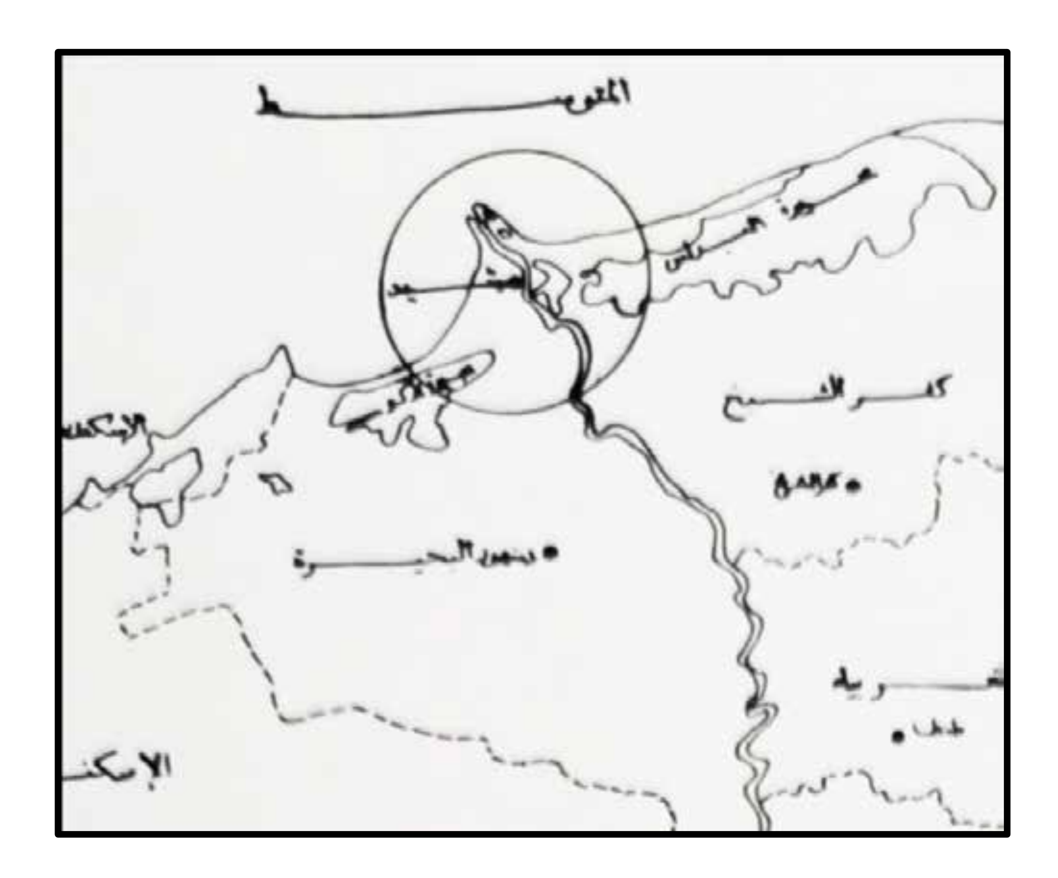


Fig (2): The location of the city of Rosetta, north of the Nile River Delta, overlooking the Mediterranean Sea.

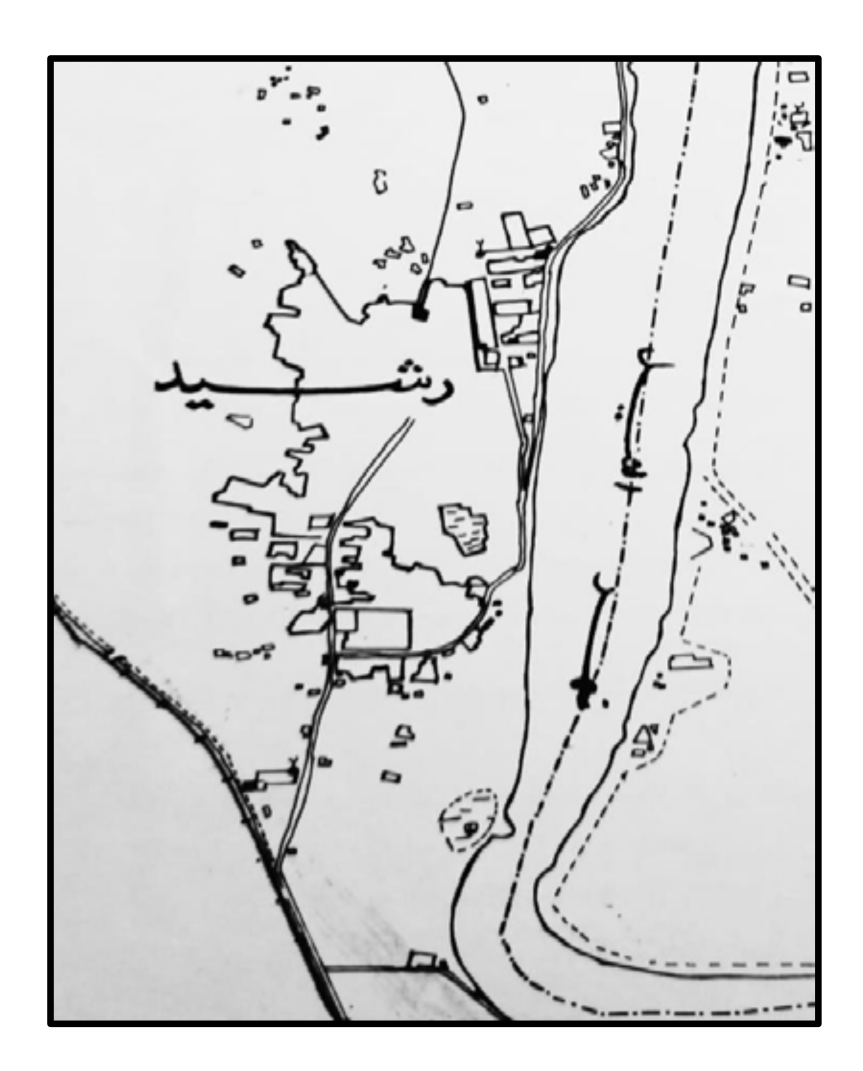


Fig (3) : The location of the city of Rosetta, west of the Nile River



Fig (4) : The wooden barrier surrounding the opening of the roof of the second floor shield, (Al Qanadili House) - Rashid

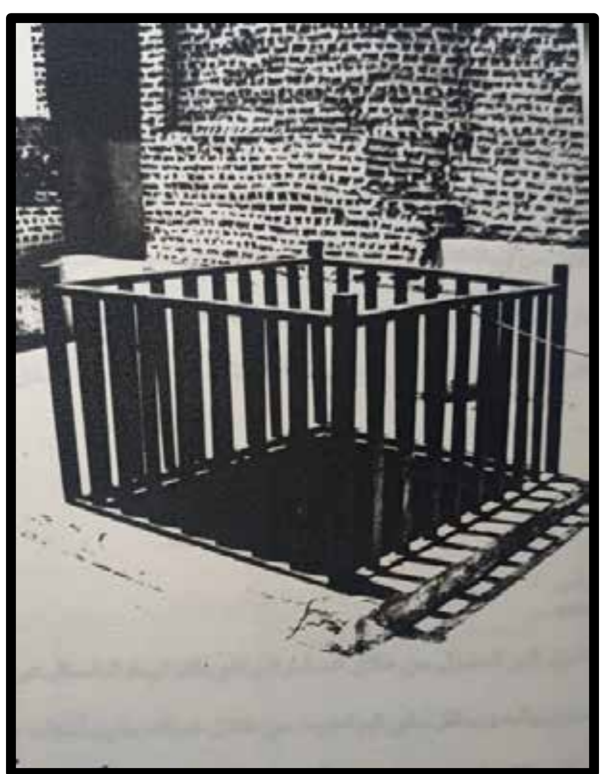


Fig (5) : The wooden barrier of the roof of the second floor drqaa, (Hassiba Ghazal) house - Rachid

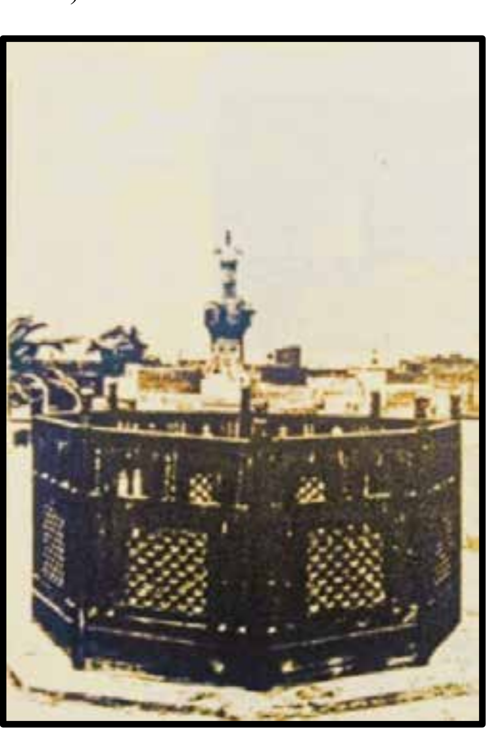


Fig (6) : Ceiling hatch for the second floor of (Al-Amsaly) house - Rashid

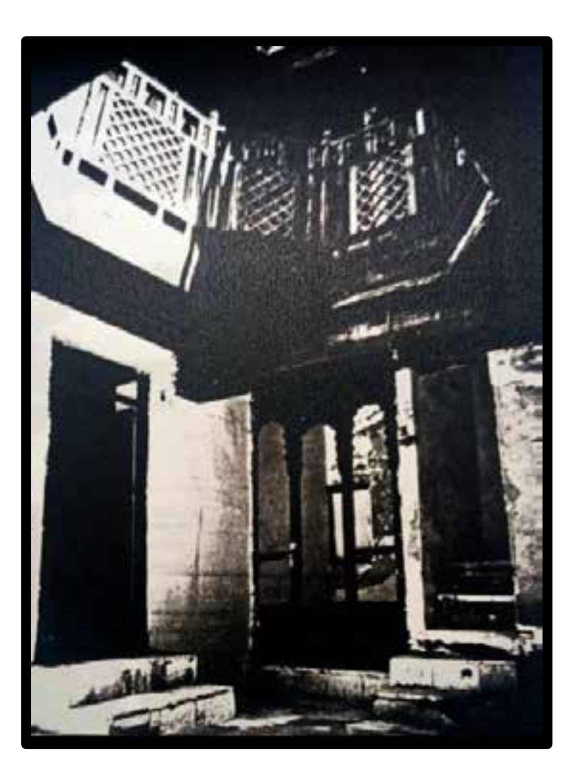
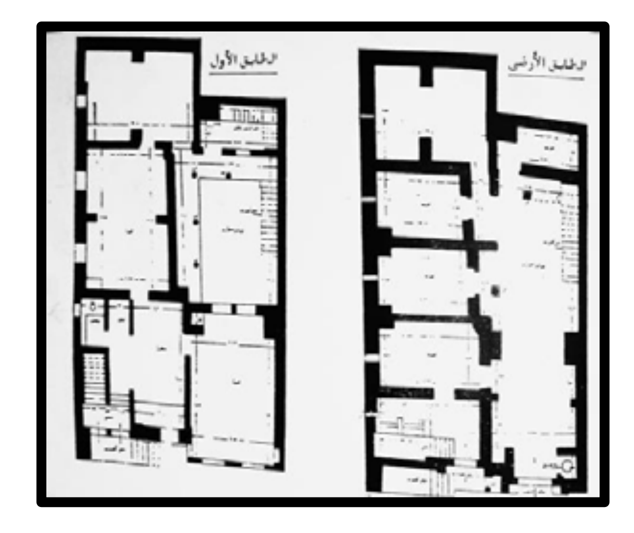


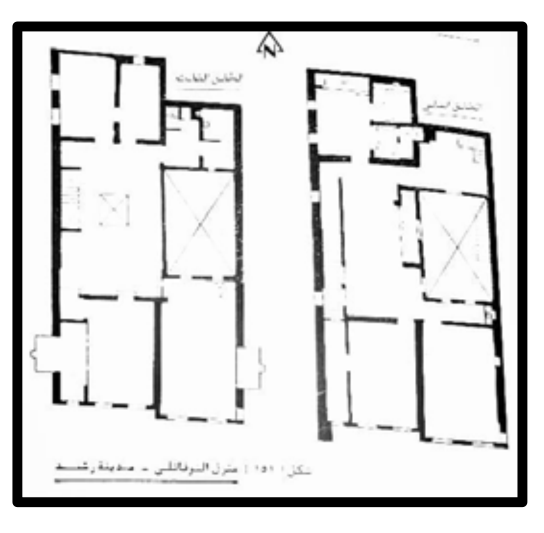
Fig (7) : The octagonal wooden barrier on the roof of (Jalal's) house is topped by a



Fig (8) : The second floor balcony in the house of (Jalal) - Rashid



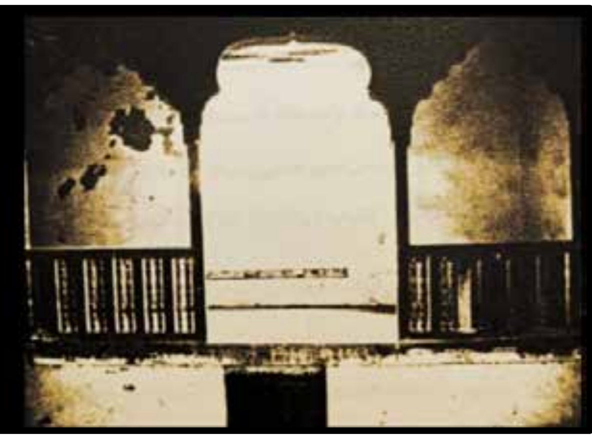
Fig(9) : The Horizontal Projections of the Four Floors of (Al-Tawaqatli) House - Berrechid



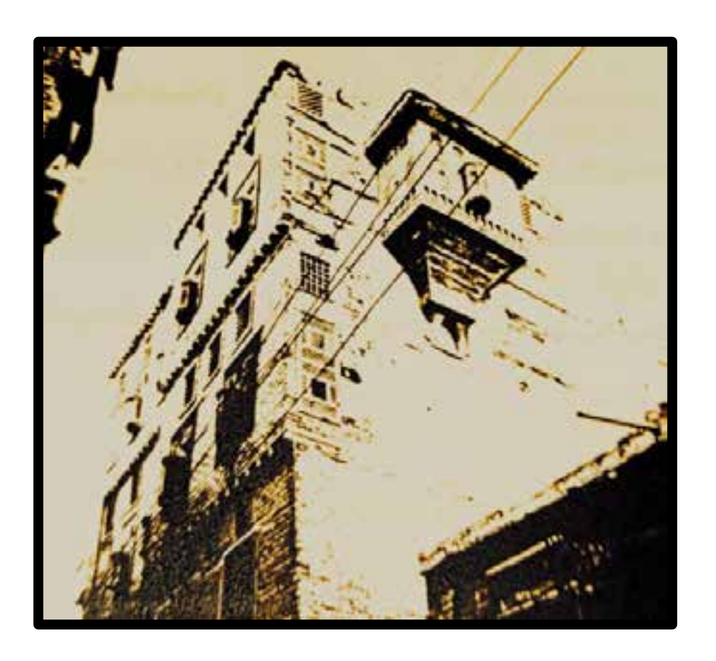
Fig(10) : The Horizontal Projections of the Four Floors of (Al-Tawaqatli) House - Berrechid



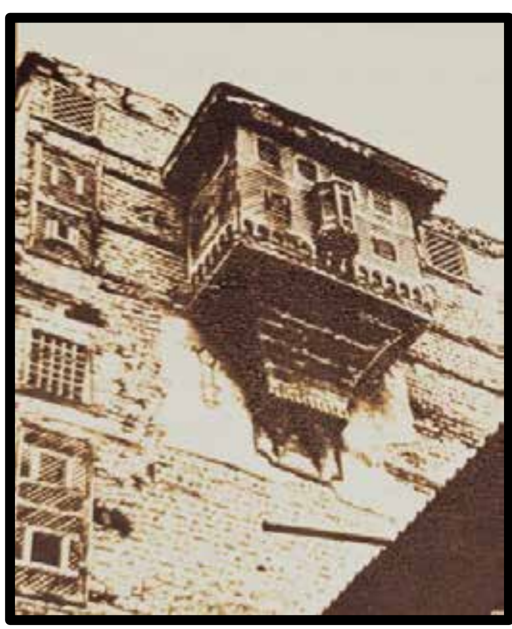
Fig(11) : Darqaa on the third floor of al-Touqatli's house



Fig(12) : Facade of Ewan Darqaa of the third floor of al-Tawaqatli's house



Fig(13) : Al-Roshan, the eastern side of the sixth floor, (Al-Tawaqatli House) - Rashid



Fig(14) : Al-Roshan, the eastern side of the sixth floor, (Al-Tawaqatli House) - Rashid



Fig (15) : Al-Roshan, the eastern side, inside the third-floor Dargaa, (Al-Tawaqatli house)



Fig (16) : Al-Roshan, the eastern side, inside the third-floor Dargaa, (Al-Tawaqatli house)

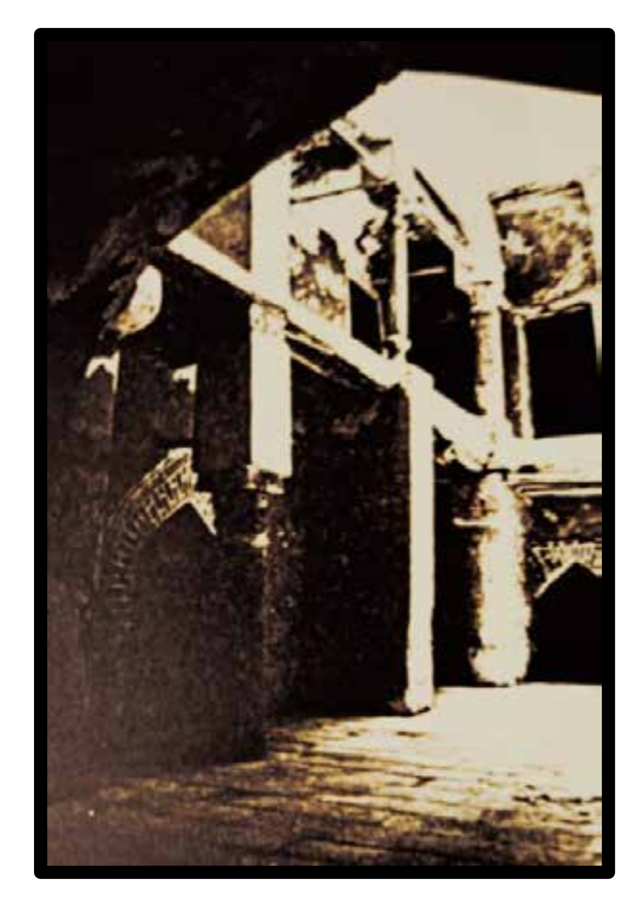


Fig (17): Detail of the inner courtyard of Al-Tawaqatli's house in Rosetta.

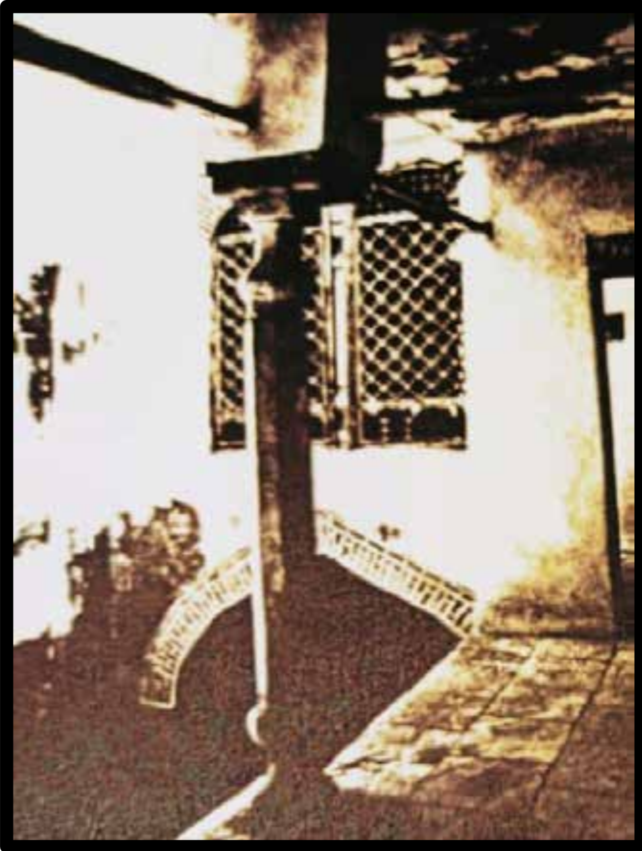


Fig (18): Detail of the inner courtyard of Al-Tawaqatli's house in Rosetta.

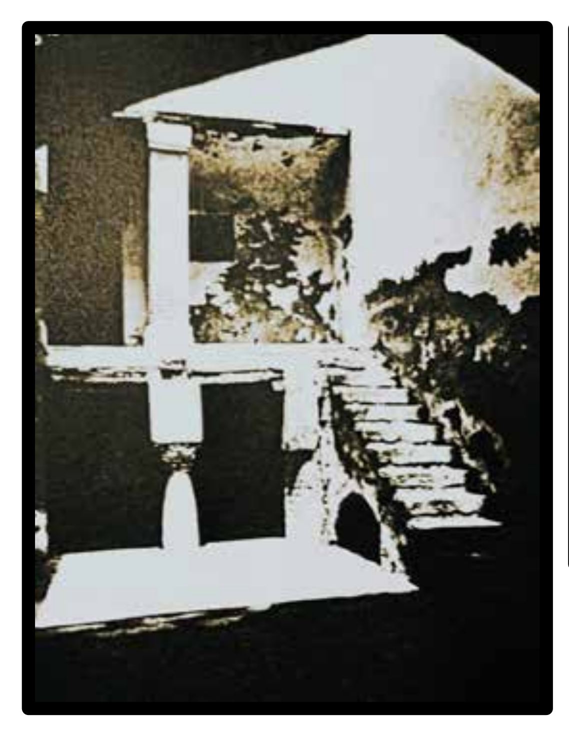


Fig (19): Detail of the inner courtyard of Al-Tawaqatli's house in Rosetta.

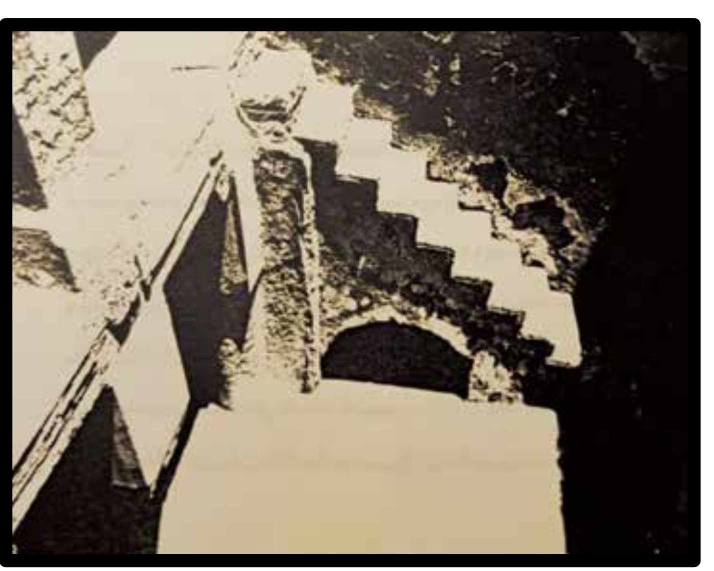


Fig (20): Detail of the inner courtyard of Al-Tawaqatli's house in Rosetta.



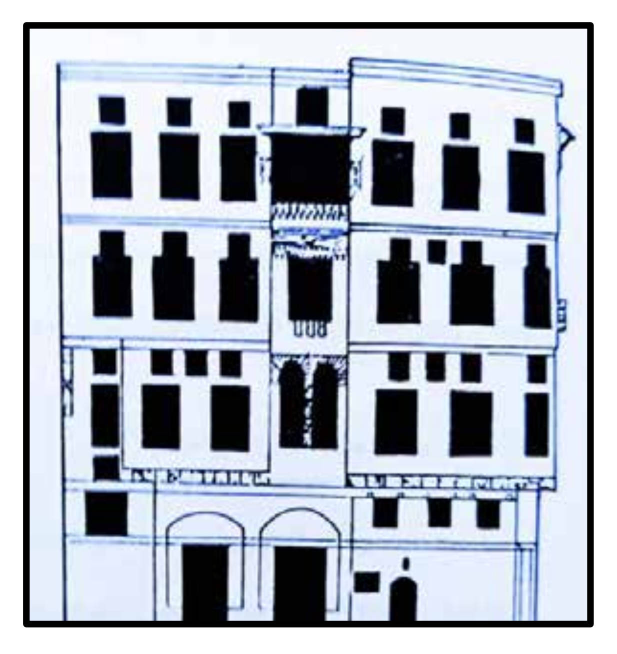
Fig(21) : The northern main facade and the western side facade of the (Ramadan)-Rasheed house



Fig(22) : The horizontal projections of the four floors, House (Ramadan) - Rashid



Fig(23) : Roshan on the second and third floors in the central sector, the main northern facade of (Ramadan) House- Rashid

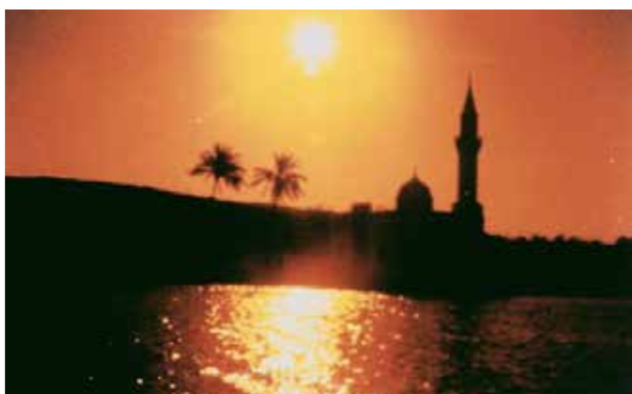


Fig(24) : The main northern façade of (Ramadan) House, where Al-Roshan is located in the central sector



Fig (25) : The western side facade of the (Ramadan house) - and it is noted in the northern and western facades the large number of openings, louvres, and mashrabiyas that help in introducing light and air into the inner courtyard and distributing it to all the interior spaces of the house .

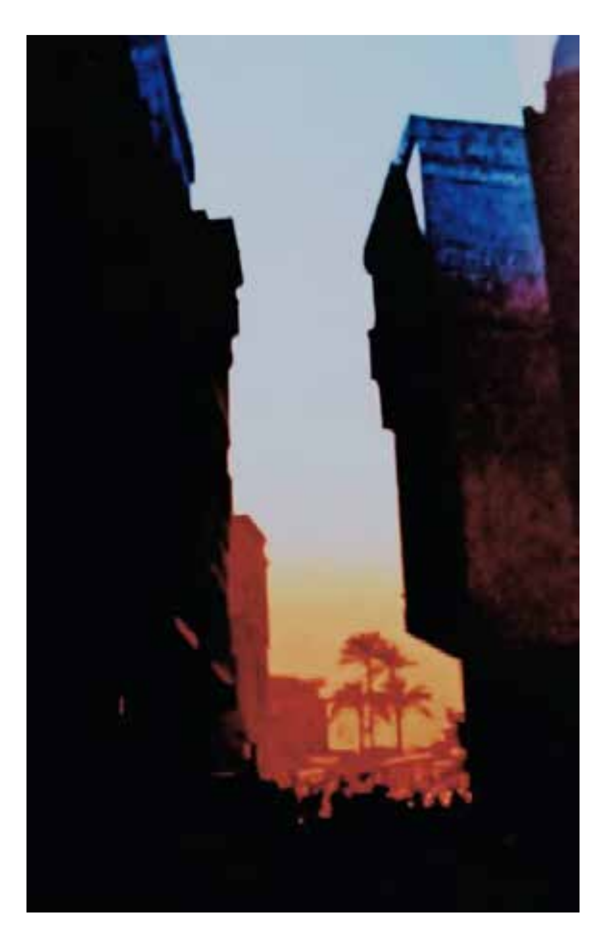




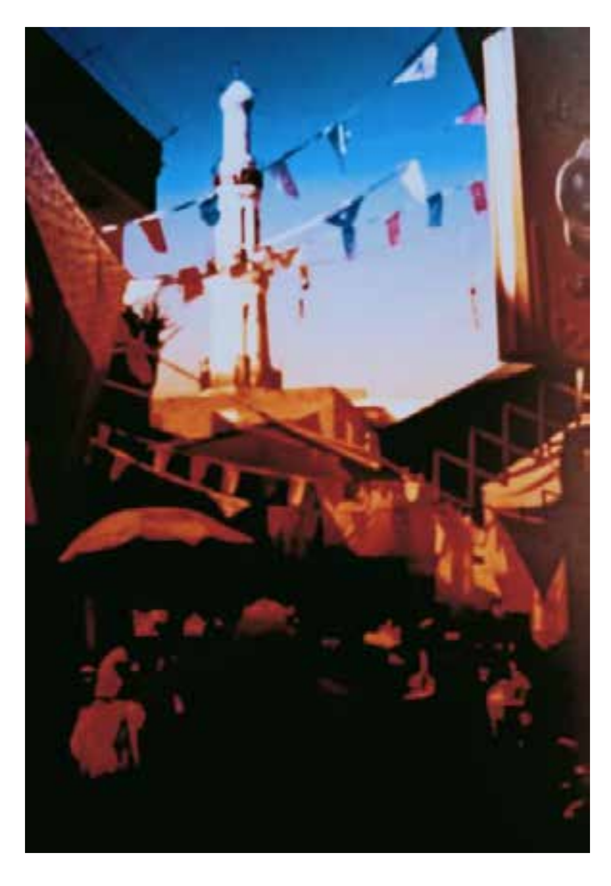


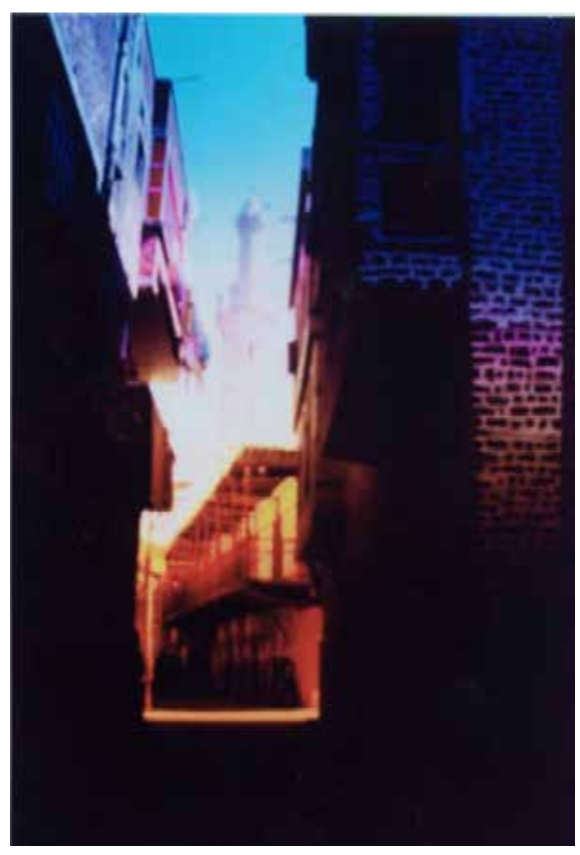


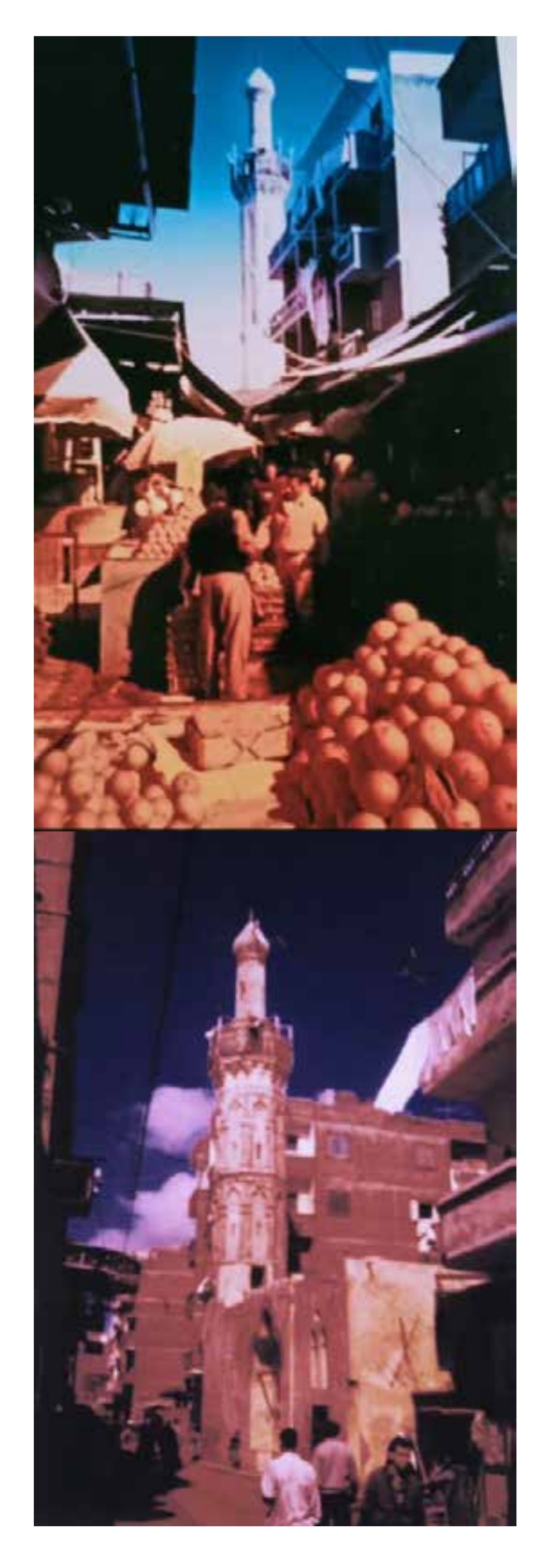














The researcher portrayed aspects of daily life in the historical city of Rosetta

Research results:

- The natural environment surrounding the buildings of the city of Rashid affected the shape of the group of houses that remained for us. The architects of that period were very sensitive to the environment, and their buildings were linked to the environment in all its elements. They also succeeded in creating an exemplary environmental architecture.

- It was noted that the number of openings that were represented in the windows Fig(21,24,25), mashrabiyas Fig(23) and rawashen Fig(13,14,23) were large and occupied the facades of the houses of the city of Rashid, for the sake of ventilation and lighting.

- After the research phase, it became clear that the Muslim designer adhered to several functional values during the design process. They made decisions related to the small areas on which the houses of the city of Rashid are built as well as decisions related to the climate, and the religious and social environment. The decisions considered the aesthetic and plastic values in the implementation of the architectural elements in addition to the elements of the fixed and movable interior architecture.

- The Rashid houses were distinguished by their exterior view, unlike the Cairo houses built in the same period, which overlooked the interior because they contained courtyards with gardens.

- The city of Rashid was distinguished by its internal buildings, which contained integrated windows of openings on each floor, linking the windows, mashrabiyas, and the external skylights existing on the facades of the houses, and between the internal windows and skylights above the doors, to attract air from the outside to the inside of the houses. The staircase in every house provided ventilation, as it acts as a reservoir of cold air and passes it through the facade of the ground floor to the upper

floors. It also distributes it through the windows, skylights, and doors of each floor to the inside of the darqahs, which in turn distributes it to the rest of the units.

Recommendations:

- The necessity of paying attention to the environmental design of the interior architecture and benefiting from the solutions that were extracted from those buildings. This should be achieved in cooperation and coordination with the architectural designer in the early stages of the design to determine the locations and treatments of the openings associated with the proposed interior furnishing plan on the one hand, and the environment with all its elements on the other hand.

- It is recommended that the functional values that have been reached in the houses of the city of Rashid be adhered to as a basis for design in Islamic societies. They should also adhere to the content of functional and aesthetic values and work to innovate modern forms and treatments using contemporary technologies that are compatible with the environment and its traditions. Thus, we have a distinct character emanating from them, not alien to it.

- Directing researchers to pay attention to research on the types of local architecture and the distinguished Egyptian architectural styles throughout history. Researchers need to work on studying those architectural styles and extracting their functional and aesthetic values while working on modernizing them. They also need to study the methods and techniques leading to modernizing the original elements while also paying attention to studying the local raw materials used. Additionally, they need to work on modernizing and employing them through the techniques of the modern era.

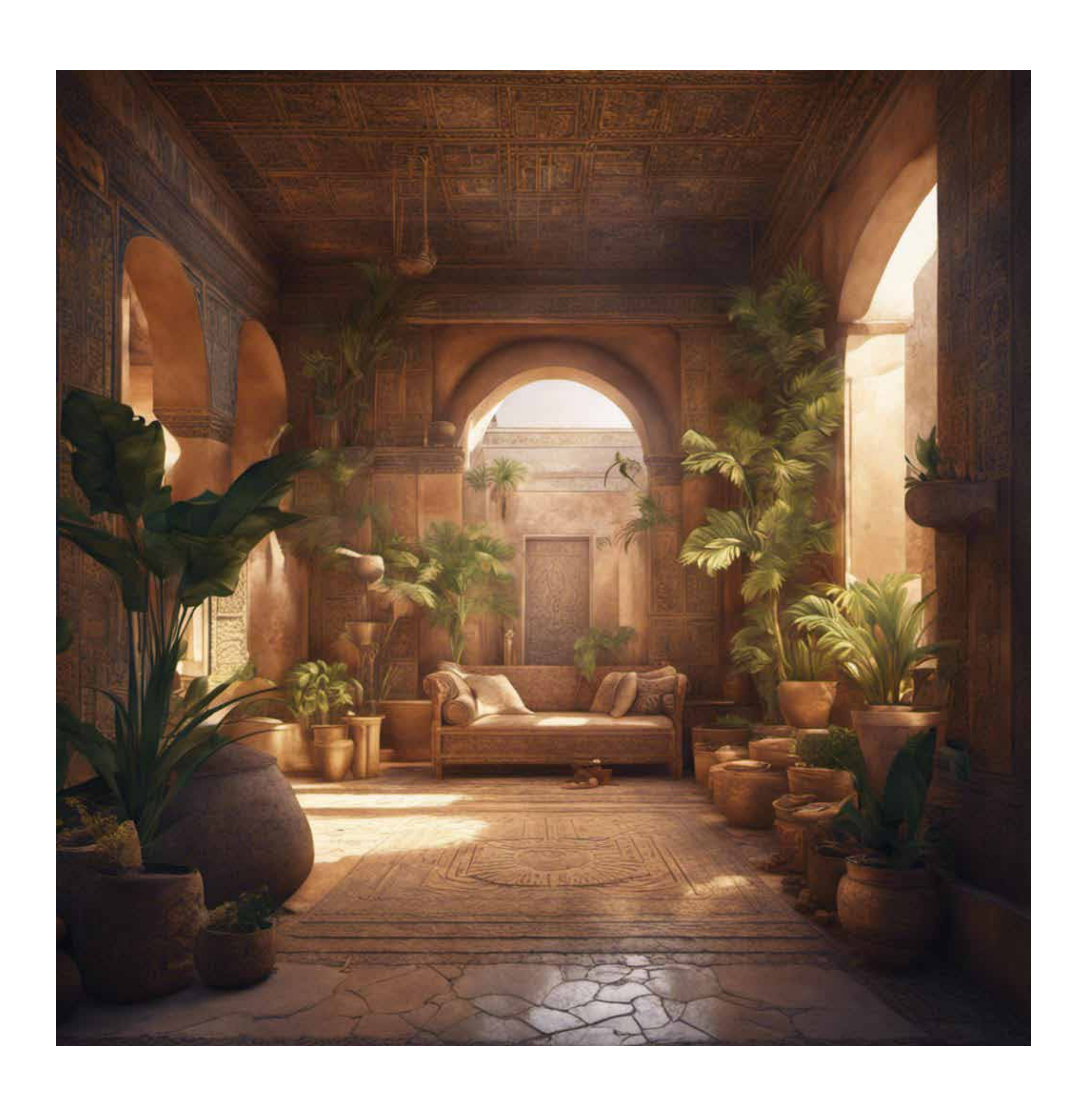
- Applying the design strategies that were followed in the design of Rashid's houses related to the religious and social environment, climate, and narrow spaces to achieve all the aesthetic demands of the occupants of modern houses.

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- The multiple field visits that the researcher made to the city of Rosetta(Rashid), which helped to clarify the full perception of the dimensions and aspects of the subject and the link between the city's civil and religious buildings, in addition to the military architecture and the environment in Rosetta city and its general location on the Nile River and the Mediterranean Sea.



by Night Cafe, Detailed Matte painting for an interior courtyard, in a traditional Egyptian house

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SPIRIT PLACE AND SUSTAINABILITY IN DAMASCUS COURTYARD HOUSES

SOULAIMAN AL-MHANNA

Abstract

The importance of the paper is showing the environmental, cultural and social value of the Damascus courtyard houses as Mediterranean Residence as a regional heritage, where the concept of heritage brings aesthetic and functional values, and is characterized by persistence and continuity together, as it is an honest record of community culture, unity of its human and intellectual features throughout the ages, and a Physical fact imposed its acceptance and respect .Where the word (Tradition) expresses two aspects: the intellectual aspect and the physical aspect.

Keywords

Old Damascus , haramlik, salamlik, iwan.

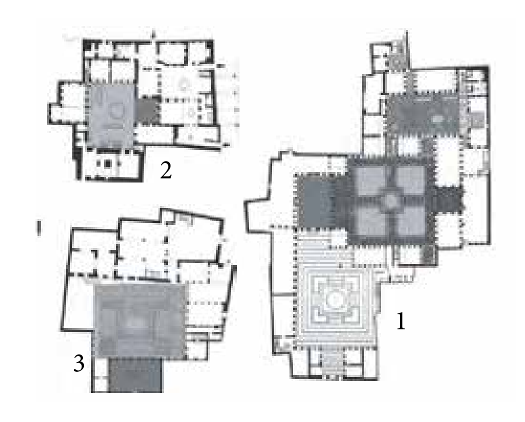
Introduction

The history of the Damascene House dates back to the 17th and 18th centuries, and continued until Damascus entered the modern era and was influenced by the European urbanization pattern in the middle of the 19th century. The old wall, where the Damascene houses differ from each other in terms of space, the multiplicity of their facilities, their decoration and inscriptions, but the similarity is fixed in their general features and the basic elements of their composition. Damascus is the oldest continuously inhabited city on earth -which makes it, perhaps, the largest unexcavated archaeological site in the world. No one has ever been able to explore what lies underneath the town because there have always been people living in it.

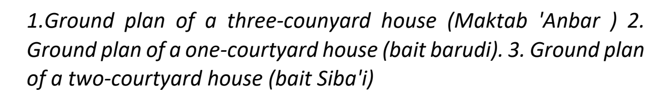
Historical areas in the Damascus City (Walled Old City).

Damascus was established on four hills, and archaeological excavations proved the urban existence that goes back to the 3rd millennium BC. The urban heritage is almost concentrated in the old city, consisting of historical residential and military constructions such as the Damascus citadel, the wall, towers and a number of unique religious architecture, the most important of which are the Umayyad mosque and the

religious schools, such as Al Adliyeh, Al Ayyoubiyeh, Al Zahiriyeh and many others, in addition to Khans (Khan Asa`ad Pasha),
historical souks (Souk Al Hamidiyeh) and many historical houses (Al A`azem, A`anbar, Al Na`assan. etc.). It is a stunning surprise to pass through the dark streets and alleys of the old city into the sunlit courtyards of the Damascus houses with their trees and singing birds. Houses may have one courtyard, shared by all the family, or two: an 'outer' court (salamlik)[1] for entertaining and visitors, and an 'inner' one (haramlik)[2] for the family. An important house might have three, or even four, courtyards, providing necessary space for the servants and services.







1.Ground plan of a three-counyard house (Maktab 'Anbar) 2. Ground plan of a one-courtyard house (bait barudi). 3. Ground plan of a two-courtyard house (bait Siba'i)

The iwan of Bait Nizan with its magnificent stonework.

The courtyard house typology in Damascus.

Presented a number of examples of courtyard houses in Damascus ,Aleppo, Hama ,Homs. The traditional courtyard house in Syria is composed of three parts: - basement floor. - ground floor comprising the main living areas called 'Al Salamlek'- first floor comprising the private areas called 'Al Haramlek'. The basement floor enjoys an even temperature throughout the year. It is therefore an attractive living space in periods of extreme winter or summer temperatures. The basement acts as a thermal moderator during the hot dry season, as it allows the hot air collected by the wind-catchers to be cooled and humidified before it is released to the courtyard space.
The houses are usually accessed through a humble space leading into a spacious and beautifully landscaped courtyard. The entrance door consists of one or two wooden doorleafs, reinforced with lead plates fixed with steel nails. The small size of the external door represents humbleness, which is also portrayed in the lack of decorations of the external windows. It is very difficult, therefore, to judge the level of wealth or poverty of the houses from their external appearance. The entrance door usually leads

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1 A part of house for men.

2 A part of house for women.

to a narrow passageway at the end of which another door or curtain filters the entrance to the courtyard, allowing this latter to be totally private and visually inaccessible from the outside, even if the entrance door is left open, which was frequently the case as the old city neighborhoods used to enjoy a high level of security.

The transition from the outside to the inside is marked by a contrasting spatial experience, from a modest and sometimes austere entrance to a highly decorated internal open courtyard with a central fountain (and sometimes a well) and beautiful façades. Landscaping also plays an important role in the courtyard of the traditional Syrian courtyard. It consists mainly of two categories: decorative planting such as climbing jasmine and rose bushes, which add color and sent to the courtyard atmosphere, and citrus trees such as orange and lemon. The façades of the internal courtyard are highly decorated with intricately woven geometric patterns and shapes. The iwan is an important covered open space from which the aesthetic qualities of the courtyard can be enjoyed. It provides a raised platform (by one or two steps), used as apleasant and comfortable open-air reception and seating area and a venue for evening events such as playing of traditional music. The iwan[3] is usually located on the north façade of the courtyard to catch the cool breeze during the summer. The iwan comprises two symmetrical rooms facing each other and has an ornamental front stone arch facing the courtyard. The transition from the courtyard to the iwan space is marked by a multicolored marble patterned floor, which resembles an oriental carpet. Facing the iwan is the main guests' reception hall used for special ceremonies and festivities such as Eid. This hall is the most decorated space in the house (Figure 3.6) and contains the best furniture items. In some houses, such as the Wakil, Basil and Ghazali houses in Aleppo, the main guests' hall is covered with a dome In addition to the iwan and the reception areas, the ground floor also contains the kitchen and toilets. The first floor is called the Haramlek . It is a word of Turkish origin meaning a women's section in the house. The living and sleeping areas are totally segregated. The accessibility from the ground floor to the first floor is through a staircase located in the courtyard . Small apartments can sometimes be found on the first floor, particularly in the case of extended families. The first floor can also contain some terraces, allowing the sun's rays to penetrate the courtyard. These provide useful open spaces used for sleeping or seating during the evenings of the hot season. The roof spaces are usually well protected by high parapet walls, providing adequate privacy

Description of the inner courtyard.

The Mushrabiya is a wooden balcony located on the outer façade of the house. It provides a cool screened space for women, allowing them to view public spaces without being seen. It is usually supported by two cantilevered wooden beams, which are anchored in the external wall. The windows are divided into two types: those located on the external façade of the house and those located on the courtyard façades. Because the house is inward looking, the external façade windows are small, plain and located from the first floor onwards in order to avoid overlooking from pedestrians in the narrow public streets . The courtyard windows are much larger and are more decorated, providing light and ventilation to the rooms. The ground floor windows facing the courtyard comprise a glass window located to the inside of the thickness of

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[3] An area of the house is opening to the south, facing the courtyard.

the wall and a wooden shutter, located to the outside of the wall thickness. Other types of windows can be found at the base of the courtyard. They are small, arched with no decorations and provide light and ventilation to basement floor. The doors of the ground floor rooms are two-leaf wooden doors with a minimum of ornamental carvings, the first floor doors are, however, relatively undecorated. In the main reception hall, built-in wall cabinets are used within the thickness of the walls to display ornaments such as intricate wooden ornamental carving. The walls around the cabinets are sometimes covered with wooden panels with calligraphy carvings matching the cabinet design. The ceilings are also highly decorated, with wooden panels displaying intricately woven ornamental geometrical shapes. This is particularly the case in the main reception hall, where the ceiling is the highest in the house and consists of intersecting wooden panels with rich carving and gold-plated designs. Symmetry plays an important role in the composition of the ceiling's decorations. Damascus house have both indoor fountains were placed in the center of courtyard, and were usually quite simple in design-made in plain cut stone-until the fashion for lavishly decorated marble. The internal decorations are based on the following four types of patterns: calligraphy based on verses of the holy Qur'ãn or verses of poetry ,floral patterns derived from stems and leaves of various plants and patterns derived from animal forms such as birds. geometric patterns derived from the combination of circles, squares, rectangles and triangles. Geometric patterns are formed by multicolored stone inlays and intersecting timber slats and form floor and ceiling decorations (Figure 2). They are most evident in the floors of the main reception hall, the iwan and the courtyard area in front of the iwan.

Courtyard organization and climatic aspect.

The building materials locally available have greatly influenced the construction and shape of the Syrian courtyard house. The abundance of stone in the area made it the main building material in the construction of the courtyard houses of Damascus. Walls are frequently formed by layers of white and black stones called Al Ablaq which forms a distinctive characteristic of the courtyard houses of Syria.





houses of Damascus being 'richly decorated' with lacqt1ered wood.



The water traditional fountain

Conclusions

Having considered the traditional in old Damascus courtyard house and its characteristics, it is evident that the courtyard house form presents a number of qualities that are still relevant to contemporary domestic life in Damascus.

we believe. that the broadest work of revival, which should take place in the historic center of the city. we can look at the old house with our soul and with the eyes of art and love in our soul. and the home of the soul returning from its daily wandering to its family paradise.

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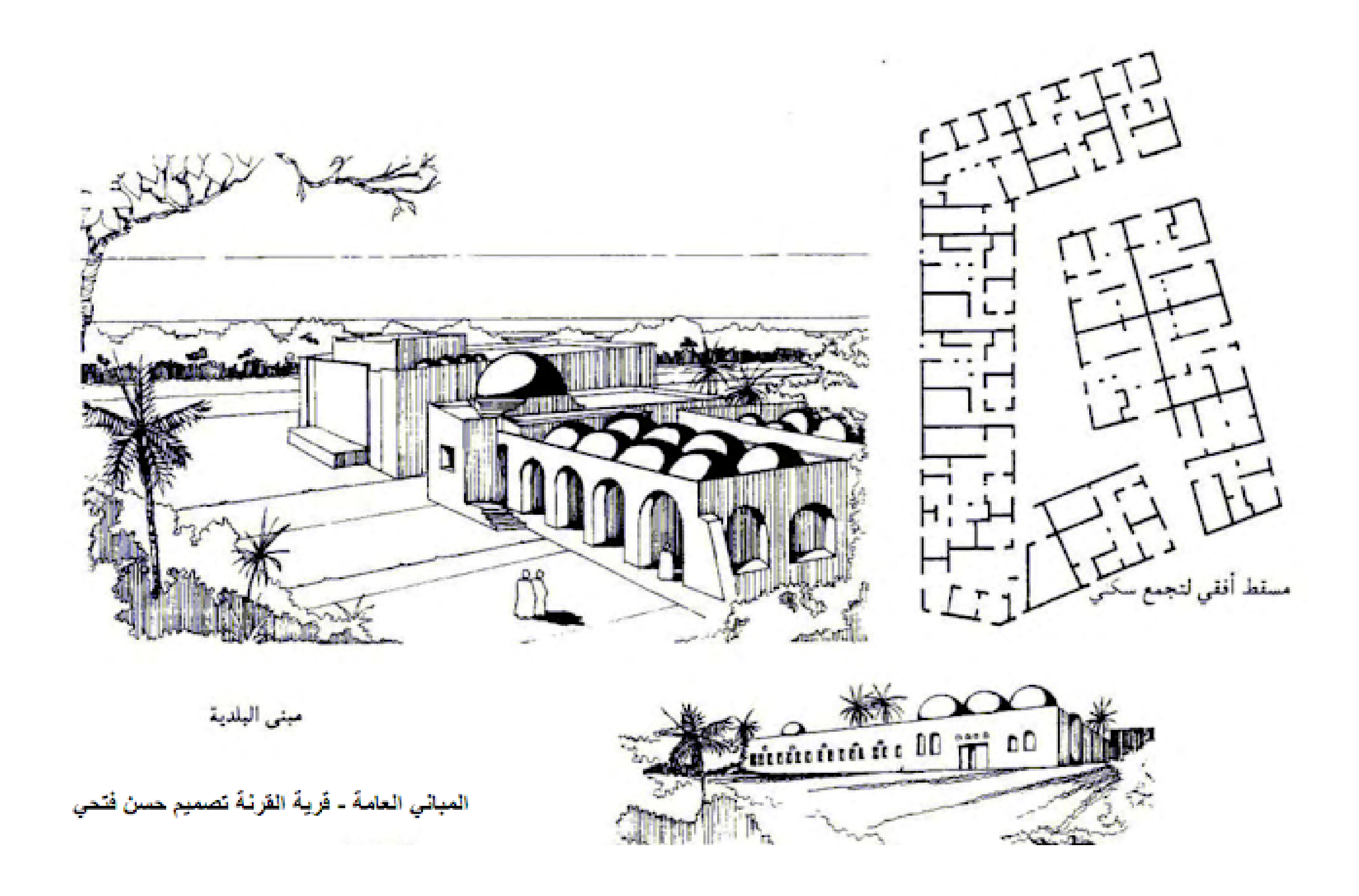
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44

THE ARAB COURTYARD HOUSE

WAEL AL-MASRI

Abstract

Arab houses in settlements around the Mediterranean and in the Arabian Gulf region generally had courtyards, and so did the houses of Ancient Egypt and Mesopotamia. Islam reinforced this type of housing as it maintains a close relation to nature and respects the privacy of the individual dwelling and its neighborhood. The size of the courtyard and its proportions varied considerably from one region to another reflecting the specific environmental conditions in each region as well as the social, economic and urban factors. The courtyard house type may be seen as a "green" devise that provides a favorable microclimate in the harsh heat of the desert, helping reduce energy consumption, and representing a true environment-friendly building.

The open to sky courtyard enjoys a changing and dynamic nature as it lives the four seasons. Its atmosphere varies according to the sun and wind movements, where shade and light, cold and hot alternate in perpetual motion, and when a fountain is located at its center, it is crowned with symbolic reference to life itself. No wonder then that the courtyard is sought for by the urban dweller in pursuit of the nature and socio-cultural medium he is deprived of in the contemporary city. An adequate understanding of this house type, and the logic behind its constituent elements should inform their re-adoption and interpretation as elements of contemporary design.

Since the mid twentieth century, modernization in the Arab world in general has seen the widespread appropriation and imitation of western architectural forms. The applications of modern planning regulations, together with the adoption of western design ideas and the use of advanced mechanical technology, have all led to the near-disappearance of the courtyard house from many Arab cities. Since the early nineteen eighties, I became an advocate of this house type, and designed several courtyard houses in the Arab region. In doing so I have been trying to draw attention to this important architectural typology and to re-introduce this house type into the Arab urban environment as an example of environmentally and culturally sustainable design.

Introduction

The house forms one of the most important material aspects of life for the individual and for society, and is considered a vital medium for cultural identity. The nature of the dwelling reflects positively or negatively on people's psychological and social conditions, and in particular has influence on the shaping of their character and personality. Because the house provides people an environment in which they can practice a greater margin of freedom in expressing their identity, it becomes a mirror which reflects their views of the world around them, and displays their values and understandings that direct their approach in life. Architectural house typologies and forms have evolved over time, and came about from the interaction of people with their natural environment, and became ingrained into collective and accumulated memory, closely related to the outlook of societies towards their cultures.

In the Arab world, the house was traditionally associated with the concept of the courtyard, fina', or hosh - hawsh –(perhaps the origin for the English name for dwelling "house"). Arab houses in settlements around the Mediterranean generally had courtyards, and so did the houses of Ancient Egypt and Mesopotamia. Islam reinforced this type of housing as it maintains a close relation to nature and respects the privacy of the individual dwelling and its neighborhood. The size of the courtyard and its proportions varied considerably from one region to another reflecting the specific environmental conditions in each region as well as the social, economic and urban factors. The courtyards of the old houses in Cairo were compact and dense with minimum or no ground floor arcades, acting as cooling wells, while courtyards in the Gulf region were generally spacious and surrounded by shading arcades, with proportions that helped in the protection from sand storms. Where land was not restricted, multiple courtyards were adopted in houses to accommodate the various family needs. Different levels in dwellings were used interchangeably as living and sleeping quarters at different times of the day and night, and throughout the different seasons.

Such architectural forms and the associated patterns of living have largely changed over the past few decades. Since the mid twentieth century, modernization in the Arab world in general has seen the widespread appropriation and imitation of Euro-American architectural forms, often to the detriment of the existing historic fabric. Modernization has generally impeded the evolution of a "modern" architecture that is more regionally based. Modern housing types such as the apartment and villa represent values and socio-cultural behavioral patterns that differ from those represented by the traditional courtyard house.

The setbacks around the villa type do not allow freedom of movement between indoor and outdoor spaces, unless the boundary walls are high enough to prevent visual intrusion, especially in conservative Arab societies. Balconies in apartment buildings do not offer this advantage either in such societies. The appropriation of Western modernization has resulted in a proliferation of architectural forms that seem to be incompatible with regional heritage. The applications of these modern planning regulations, together with the adoption of western design ideas and the use of advanced mechanical technology to provide the desired environmental comfort, have all led to the near-disappearance of the courtyard house from the architectural vocabulary of many Arab cities. This seems to be a great loss to our urban and architectural environments today. We need to preserve and maintain what has survived of this heritage to learn from, and look for ways to re-introduce its values into our contemporary living environments.





1: Courtyard House in Kuwait

The Courtyard House as a "Green" Device

The courtyard serves as a temperature regulator, acting as a well into which the cooler air from the roof sinks, and so the downstairs rooms cool more rapidly during the night. The cool air is to be preserved as long as possible and should be protected against the encroaching heat of the day. The use of high walls around the courtyard, together with vegetation in the form of trees or vines covering them, help to cut down solar gain by providing shading to the vulnerable surfaces of the courtyard. Arcades, pergolas and screens/mashrabiyias were among several devices used in buildings to shade living areas, or to filter the strong sun light into these spaces.

The courtyard also serves as a means of humidity control through evaporative cooling which is achieved to a certain degree through the use of trees, vegetation, pools or fountains. A fountain is more effective than a still pool of the same size and has the additional advantage that it does not only cool the air but can also “wash” it. The water droplets stick to dust particles in the air which can then no longer remain in suspension. Other devices are also used to increase the level of evaporative cooling, including the salsabil, the mashrabiyia, the wind catcher, etc.



2: Courtyard in a House in Kuwait

The latter was utilized in various forms in many places throughout the region to overcome humidity resulting from stagnation of air in living spaces. The builders of the past paid special attention to the orientation of houses and courtyards taking into account the prevailing winds and sun movement, which allowed the house to be planned in harmony with the changing climatic elements throughout the seasons.

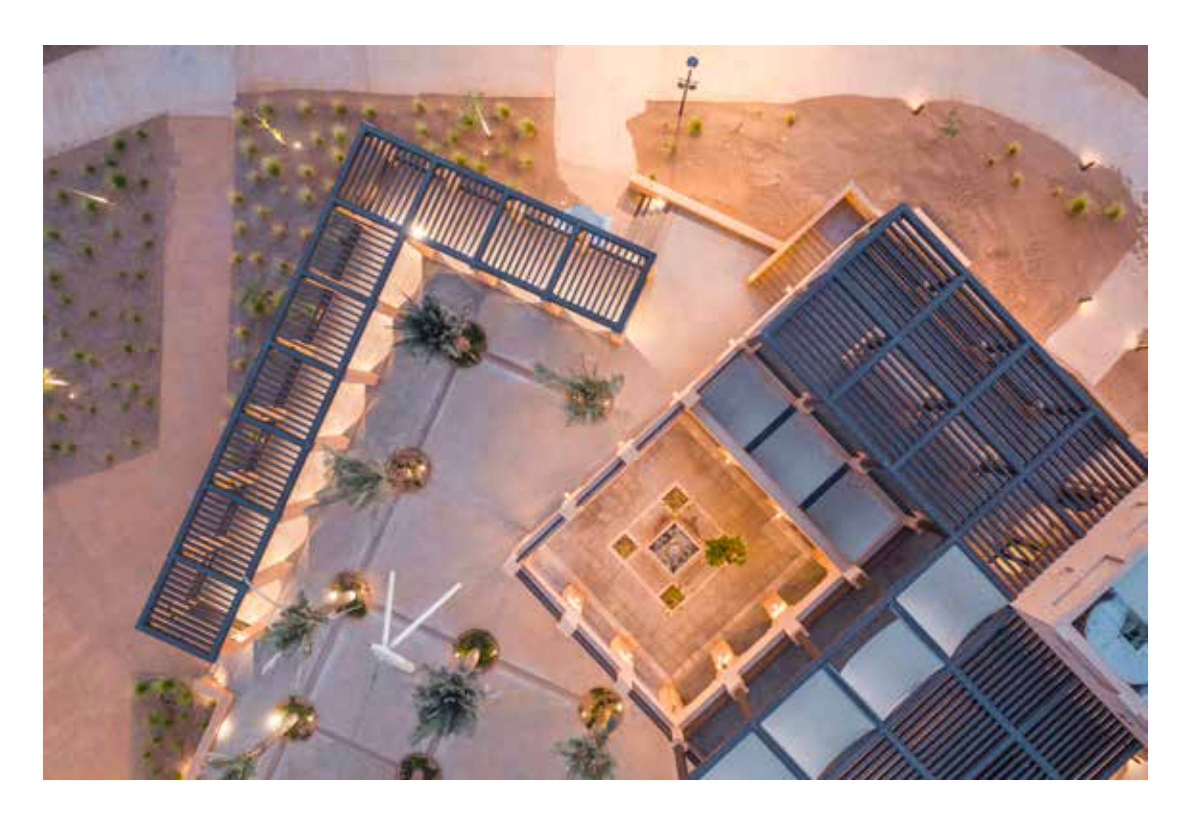


3: Courtyard in a Kuwaiti House

In all this the courtyard house type may be seen as a “green” devise that provides a favorable microclimate in the harsh heat of the desert, helping reduce energy consumption, and representing a true environment-friendly building. An adequate understanding of this house type, and the logic behind its constituent elements should inform their adoption and interpretation as elements of contemporary sustainable design.

Thermal Delight in the Courtyard

The cool courtyard provides an opposite to the extreme external conditions. Subtle variations within the courtyard house horizontally and vertically make certain parts of the house preferred more than others at certain times. Cool breeze is generated by differential pressures between the courtyard and the surrounding rooms, which flows at intervals due to the pressure building up in the courtyard and then air being released into the surroundings. The positioning of ventilators and wind catches and their careful proportions also assists this flow within the house. There is an extra delight in the delicious comfort of this alternating warmth and coolness of this “courtyard breeze”. It is so different from the constant temperature and humidity of a mechanically air-conditional environment.



4: Courtyard in Mysk Al-Badayer Retreat, Sharjah, UAE

The courtyard has an important role of providing a protected natural environment that suits human natural instincts, and interacts with the human senses. The mechanism in which natural elements interact with the courtyard and its reflection on the environmental values of this space, is closely related to archetypal human instincts, which reflected on the formation of this traditional built environment in general including the courtyard. The deep understanding of this mechanism would reveal the secrets of this outstanding creation, and would illuminate the way for new formulas that take advantage from the potentials and opportunities available to us today through modern materials and technologies. The feel of the cool refreshing air inside the courtyard intensifies when we imagine the hot dry desert outside. This feeling increases even more when the separation between the two environments is well defined through the use of high walls around the courtyard, which concentrates the feel of gentle coolness, and highlights the contrast between inside and outside.





5: Courtyards in a Kuwaiti House

In our experience of the thermal qualities of the courtyard environment, we look at factors that are related to the feelings of coolness or warmth through our previous experiences, and through our natural instincts.

For example, surface textures may be good indicators of expected temperature. Polished marble gives a feel of coolness, while rough clay brick is associated with warmth. Colors also have their associations: white evokes coolness associated with water coming out of a fountain, brown and red give the feel of warmth coming out of fire. Tiles are usually used to cover the walls of Moroccan courtyards in white and blue for the same reason.

On the other hand, scents and the singing of birds evoke refreshing coolness in a garden full of flowers and shade. It may reach a point when some of these influences can become substitutes to the actual experience itself. For example, the mere view of a shade tree in a courtyard and the fountain in its center may be enough to obtain a full sense of refreshing enjoyment. A mere glimpse of the lush tree in the courtyard and the fountain in its center is visually soothing, and enough to get a full sense of refreshing delight.

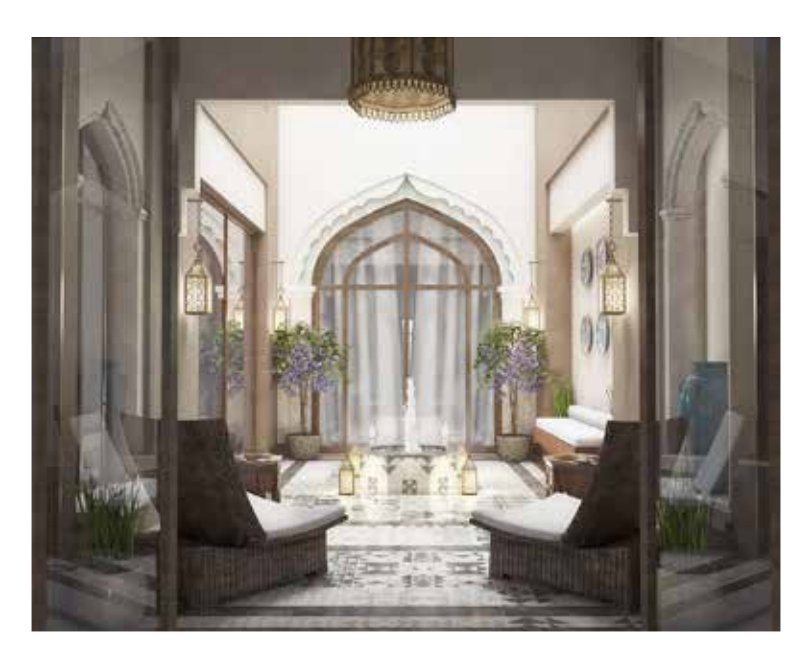


6: Courtyard in a Kuwaiti House

There are indicators that come from other senses that help us to feel the weather, which allow us to enjoy it more. For example, there are various ways through which we can observe the movement of air that cools the atmosphere around us, although this movement may be very light. In the courtyards of old houses in Damascus and Cairo, roses, jasmines, and other fragrant flowers were planted in different quarters of the garden, so when the breeze came from each side, it came loaded with their beautiful refreshing scents.

Sensory associations of coolness may also be invoked indirectly through active movement which forms important contrasts to the heavy, static associations of a hot, humid day. Thus, sharp sounds of water droplets falling on the marble or mosaic floor of a fountain, the intricate and delicate lattice work of an Egyptian mashrabiyia, or the infinite calligraphy, floral and geometric patterns which endlessly cover the walls surrounding a Moroccan courtyard, evoke images of coolness in hot summer days.

On the other hand, the stress generated by the over-stimulating heat, bright sun shine, and dry wind, call for a deep and quite coolness, a place to retreat from the sun and rest in peace. The classical Arab courtyard gardens can be seen to provide the antidote to the exhaustion of the senses. The vitality of the fountain and the climbing vines with their fluttering leaves, create a speckled light. There are also areas at ground level and at higher level which create a deep, quite shade. One is free to move among the different elements and to choose the place where the balance of liveliness and tranquility is just right.



7: Courtyard in a Kuwaiti House

Feelings of affection were focused on certain places in the house because they provide enjoyable weather conditions, which make these places attractive socially. As with the pleasure of eating for example, this condition becomes an experience to be shared with people who are close to us, because the shared feeling of comfort creates a sort of social bond, and becomes a way to strengthen friendship. There are several forms of this kind of favorable places in Arab courtyard houses, which have been developed over time and became important elements in the formal architectural language and identity of these houses.

In the courtyard houses of old Cairo, the upper level - Maq'd overlooking the courtyard enjoys the refreshing breeze and views of the courtyard. When friends of the master of the house came to visit, this was the favorite place to sit in and enjoy their time. This is also true for the Takhtabush, which may be situated between two courtyards in the same house on ground floor, where the different air pressure between the two courtyards creates a breeze that can best be enjoyed while sitting in this place. The courtyard played an important role as a special envelope for family unity because the thermal properties provided by this space allowed for family gatherings, which reinforced this social bond, for the material enjoyment of the individual reflects on the feelings and health of the family as a whole.

Symbolic Cultural Associations

The association between place and this sense of wellness is one of the reasons that make us look at this place with special fondness as it is responsible for giving us joyful moments in our lives. This fondness reflects in turn on the level of attention people give to this place through embellishing it with ornamentation such as the colored zellije that surround Moroccan courtyards, and the plants and flowers in the courtyards houses of Damascus and the Andalusian cities of Cordova, Seville and Granada, among others.



8: Courtyard in a Kuwaiti House

Such associations are also related to the concept and descriptions of Paradise, and to the relationship between the definition of "ideal home" and the concept of paradise in Islam, which supports the scholarly opinion that related the development of the courtyard in Islamic civilization to the Quranic depictions of paradise with its trees, flowing rivers and springs, rest places, the play of shade and light, the harmony of colors, and its peaceful and tranquil atmosphere.

As the focal space in such traditional Arab houses, the courtyard represents the center that symbolizes the eternal unity between man and the universe, in which the soul seeks psychic equilibrium and tranquility through imagination, and through the assistance of material elements that enrich this experience and activates that imagination. Situated at the center of the house, the courtyard enables the self to communicate with the universe. It is simultaneously full and empty, an empty void containing everything in the center of each of us, a space which joins earth to sky; the meeting place of the four elements: water, earth, air, fire or sun, each one having its place there. In this way the courtyard becomes an expression of the whole universe. Moreover, this void represents a totality which is a manifestation not only of the universe, but also of a soul at one with itself. The open-to-sky courtyard enjoys a changing and dynamic nature as it lives the four seasons; rain falls into it in winter, the leaves of its trees fall in autumn, and its flowers bloom in spring and summer. Its atmosphere is universal and varies according to the sun and wind movements, where shade and light, cold and hot alternate in perpetual motion, and when a fountain is located in its center, the universal relationship is crowned with symbolic reference to life itself. No wonder then that the courtyard is sought for by the urban dweller in pursuit of nature and socio-cultural medium he is deprived of in the contemporary city.



9: Courtyard House in Sharjah

Courtyard Houses Today: My Design Approach

Since the early nineteen eighties, I have been an advocate of this house type and have written extensively on this subject, and designed several courtyard houses in the Arab region, particularly in the Gulf region. In all this I have been trying to draw attention to this important architectural typology and to re-introduce this house type into the Arab urban environment as an example of environmentally and culturally sustainable design. In experimenting with the concept of the courtyard house over the past four decades, I have re-discovered its relevance to contemporary social norms through a vibrant and multi-layered adaptation of its traditional forms and functions. Whether used within a large site with several housing components or a small plot for a single family, the courtyard house can be a viable practical alternative to the commonly used type of Western villa. It provides an inner open pace that is private, calm, protected, and forms an integral part of the house.

This may be contrasted with the more public and loosely defined buffer areas surrounding the villa type within the regulatory setbacks. Another advantage is that the courtyard house allows for multiple views of the outdoors through the use of eight elevations instead of four, as in the villa type.



9: Courtyards in a Kuwaiti House

My clients often commission courtyards out of what seems to be an intertest in cultural identity or nostalgia. They are not consciously aware of the functional benefits of the courtyard house, since this type bas not been in regular use in the region for several decades. Once built, however, the courtyard house usually elicits an innate response that extends beyond mere nostalgia or aesthetic pleasure to an appreciation of the practical life style benefits it affords. Clients tend to find that they enjoy the temperate microclimate of the courtyard, the increased peacefulness and privacy, and a greater sense of community among family members. They also may view the courtyard as a functional clement, an additional outdoor room that is protected and contained, as in the case of the courtyard at the center.

It is unfortunate that, given the costly nature of professional practice, clients for this type of house must in general be wealthy. The fact that courtyard housing-in the context of my practice-seems to be, at least for now, restricted to an elite group, is not advantageous. Consider, for example, Hassan Fathy's Architecture for the Poor, which was ultimately used by the rich in the form of the Al-Sa bah Family House in Kuwait and other houses for members of the upper classes in Egypt and elsewhere. It is my hope that, as more people learn about the courtyard house, this heightened interest will be accompanied by research and experimentation into its affordable adaptation. To be successful, however, such adaptations must be supported by revisions to building regulations and a public will to change patterns of living. The effort will be well worth it; the use of courtyards and the innovation of the urban cluster would be a viable means for providing an efficient housing that is both environmentally sustainable and socially appropriate.

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REVITALIZATION OF THE RESIDENTIAL COURTYARD IN ALEXANDRIA, EGYPT

WALID OMAR

Abstract

Why was housing with a middle courtyard missing from housing and urban planning in Egypt, especially in the ancient city of Alexandria, the Pearl of the Mediterranean, as it was called. And convert it to the updated model. This paper will investigate this phenomenon and the changes that passed through the city of Alexandria, especially in the scope of housing, by analyzing it and standing on the reasons for the change and what happened in terms of development, which eventually led to the loss of the original identity of the eastern Arab house and changed some of the original customs and traditions that were distinguished by it, and some traces remained. Some of them are still present, especially in areas not adjacent to the city, whether rural or Bedouin areas, and the need to shed light on these reasons and the possibility of retrieving our Arab elements to suit our environment and our contemporary and future requirements in line with the authenticity of the past, and redesigning the dwelling with the need for these open spaces, whether in a separate dwelling (villa) Or residential buildings for the city of Alexandria.

Keywords

Revitalization- Courtyard- Green Architecture- Constructive criticism- Cooling Tradition Techniques

Introduction

Architecture is the result of space, time and needs, an integral part of society, an echo of its ideas, customs, traditions and beliefs.

The Arab city was formed and shaped as a result of inherited traditions according to climatic conditions and social and religious customs, but due to colonial conditions, it underwent continuous changes and faced many challenges, either because of its adherence to the authenticity of the past or its adherence to development and change according to Western teachings from planning cities and designing housing and its

components, but what is clear and explicit is that most countries Arabia, including Egypt, has been affected by these changes due to the many and successive events, so it has always been coveted for its colonization and settlement due to its unique location strategically and environmentally, especially in the constructive and continuous legislation systems, most of them until now. Among the most important of these changes is the decline and neglect of the courtyard in the dwelling, one of the most important elements of the formation of the Arab and Islamic dwelling and it was lost. This paper sheds light on the main reasons that led to the loss of that value. Architecture in our contemporary societies is going through difficult stages, trends trying to catch up with technological progress, others sticking to the past and its traditions, in addition to what society suffers from economic crises and increasing building density.
The question is how can we recover our original Arab elements to suit our environment and the requirements of contemporary life and the development of the age according to the customs, traditions and teachings of religion and climatic treatments for architecture cooling tradition techniques and using the latest technology that science has reached to keep pace with the continuous development of methods and materials that do not harm the environment and economic and preserve our Arab identity.

Research hypothesis:

Does the exclusion of the courtyard in the design of residential units have social and cultural dimensions (changing customs and traditions), economic conditions, or openness to the outside due to the network planning inherent in Western architecture.
The answer to these questions, from my point of view, is the loss of the basic function of the existence of the inner yard, which is, first, the openness to the inside. The first reason was the inability to open up to the outside due to the cohesion and adhesion of adjacent houses organically in the urban agglomerations of the old Arab city mainly and many of the cities of the ancient Mediterranean basin In general, the second reason is the laws and regulation of construction during the 19th century until now.

Historical background

The city of Alexandria, the beginning of its establishment by the c, with city planning, a Hellenistic 1, reticular model, as shown in figure (1), and thus the city's planning differed from the planning and establishment of most Arab cities overlooking the Mediterranean Sea, in an organic, contiguous formation, such as the city of Tunis in Tunisia,2 as shown in the figure (2), this compact formation of closed streets with a lane or a path was not present except in most of the main neighborhoods of the traditional Islamic cities, such as Fatimid Cairo, the main Road call the (Kasbah), Narrow winding streets called a lane branch out from it, then alleys leading at the end to a wide open space called a (darb).as shown in Figure (3), followed by a turn of a lane, then the path is an open space on which a group of houses opens, And it may be

an alley that several houses open to, also the alley is common to them, as well as the walls according to the division and easement rights according to the doctrine and legislation of the urbanization regulations for those areas. An example of a horizontal projection of several houses in the city of Tunis, as shown in Figure(4) .

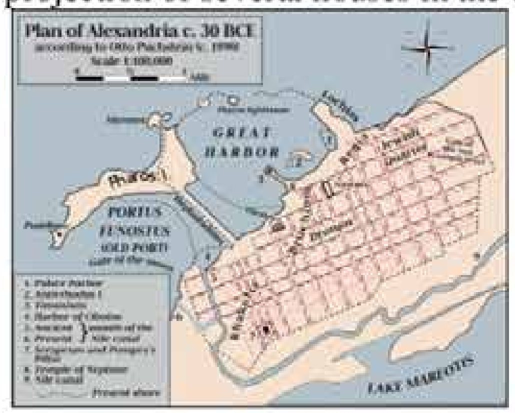


Fig (1) Alexandria 1



Fig (2) Tunis old city

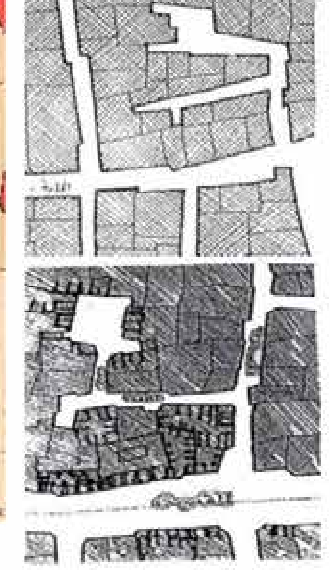


Fig (3) Hierarchical roads of Islamic city



City of Tunis



Fig (4)

At the present time, this compact formation may be available in unplanned slums areas and the poor, such as areas that were formed and spread in the absence of localities under low economic conditions, such as the Gheit al-Enab region, al-Max, and others.
Mostly, these areas are on the outskirts of cities and are inhabited by displaced people from other regions seeking job opportunities in major cities such as Alexandria. As shown in Figure (5).





Figure (5).
As for the old areas in Alexandria, such as the Turkish neighborhood and the old historical areas, they depend in their design on two models, one of which depends on the presence of an inner courtyard as a climatic and social regulator, recurring in the floors of the house, whether it consists of three or four floors, as shown in Figure (7). The other type is a dwelling without a courtyard, traditional houses that distinguished the Arab cities in the Ottoman era, and the Turkish influence appears in them (Turkish city houses) as shown in Figure.(8) 5



Fig (7).

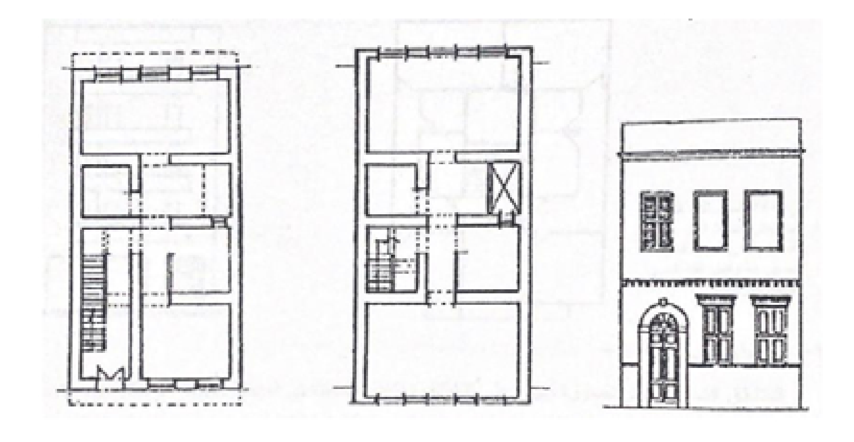




Figure.(8)

the development of planning the city of Alexandria during the British colonial period since 1882 AD and the subsequent changes, especially in the legislative systems for planning and construction, and since the outbreak of the First World War and the exodus of many foreign communities to the city of Alexandria, Greeks, Armenians, Italians, French, Swiss and others, where the population of the city of Alexandria represented more than 55% foreigners And what follows from the issuance of a building regulation that includes the division of land, building, elevations, and streets, and they are free from the design of internal courtyards, such as Gran & Rosou, general managers of the organization under the supervision of the Italian architect Francesco Mancini, and the same planning was applied by the Italian Ornato Committee, such as the city of Florence and Milan, and the designs were similar to the designs of that period, neoclassical Such as the Mazloum Pasha Villa, Aziza Fahmy Palace in zezenia Alexandria, and others. Shown in Figure (9).
The design of the enclosures was limited to public buildings, including administrative or schools, as well as mosques such as the Commander Ibrahim Mosque, designed by the Italian Mario Rossi, who previously designed many mosques, the most important of which is the Abu al-Abbas Mosque.

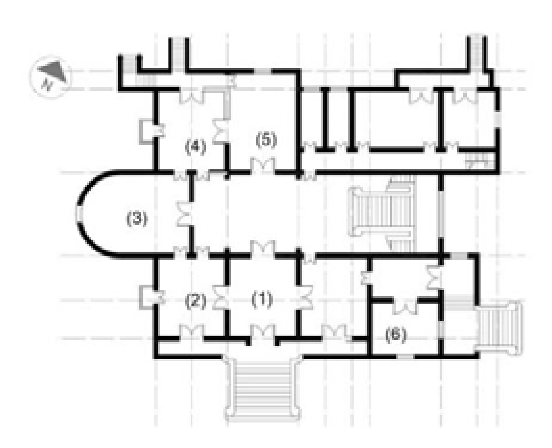
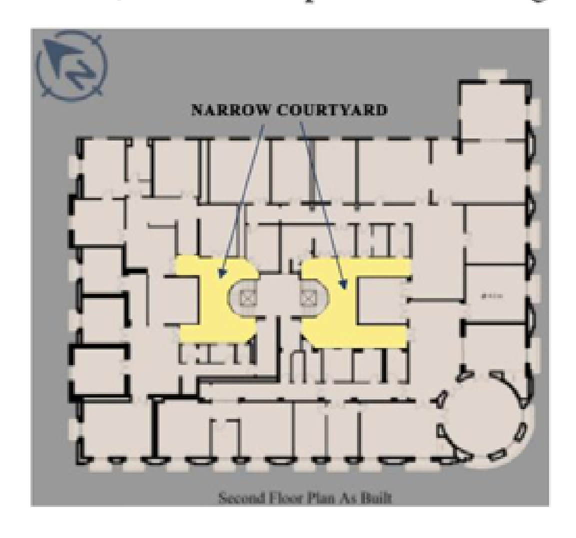




Figure (9)

As for the design of private residential buildings, and according to the organizing laws, there are service skylights, and the rest of the spaces open to the outside on the streets , as the example shown in Figures (10). 6





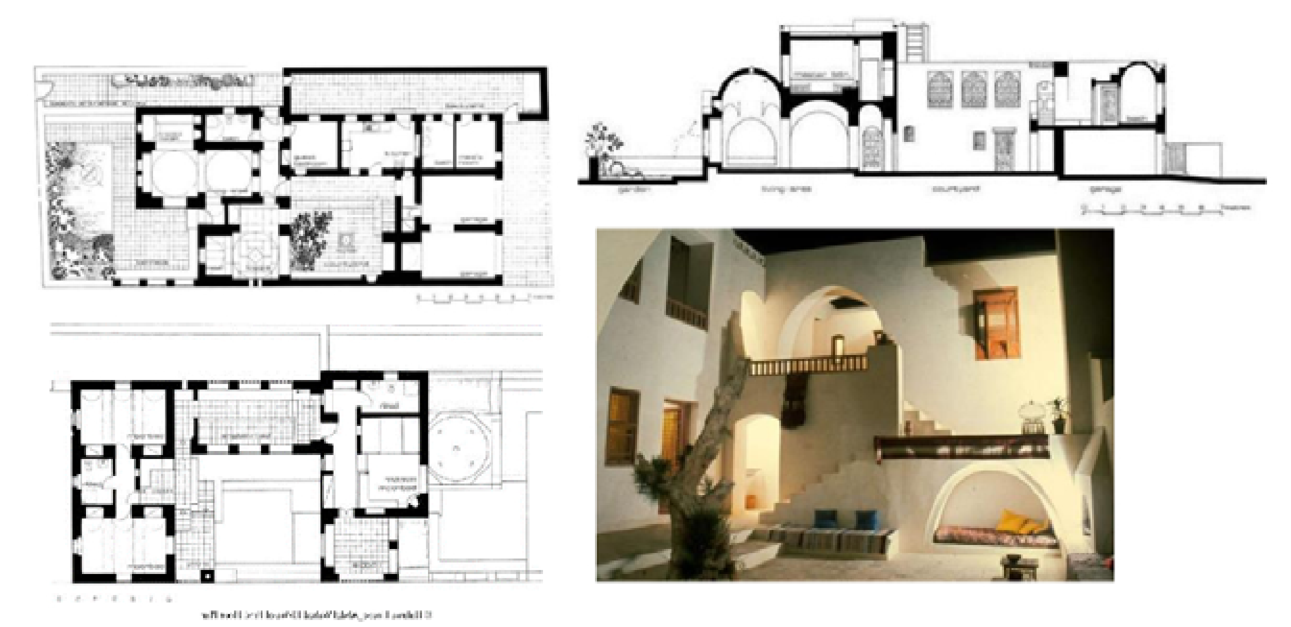
Societe Immobilie Building, Alexandria Built in 1938. 6 Fig (10).

In the sixties of the last century, some changes occurred in the construction requirements as a result of the adhesion of the buildings, and residential skylights were added to which rooms open with spaces defined by $(2/5)^2$ of the height, average area height $15m=15^2 \times 2/5= 90m^2$. Those laws have not changed to this day, and only some ideas and attempts remain for some pioneers such as Hassan Fathy, Wissa Wasef, and Abdel Wahed El wakil. The agent with their distinguished works as shown in Figures (10).

The architect has drawn upon traditional Islamic or Egyptian prototypes for the design of this house. In addition to the courtyard and its fountain, the house has a loggia, a wind catches, alcoves, masonry benches and a belvedere.







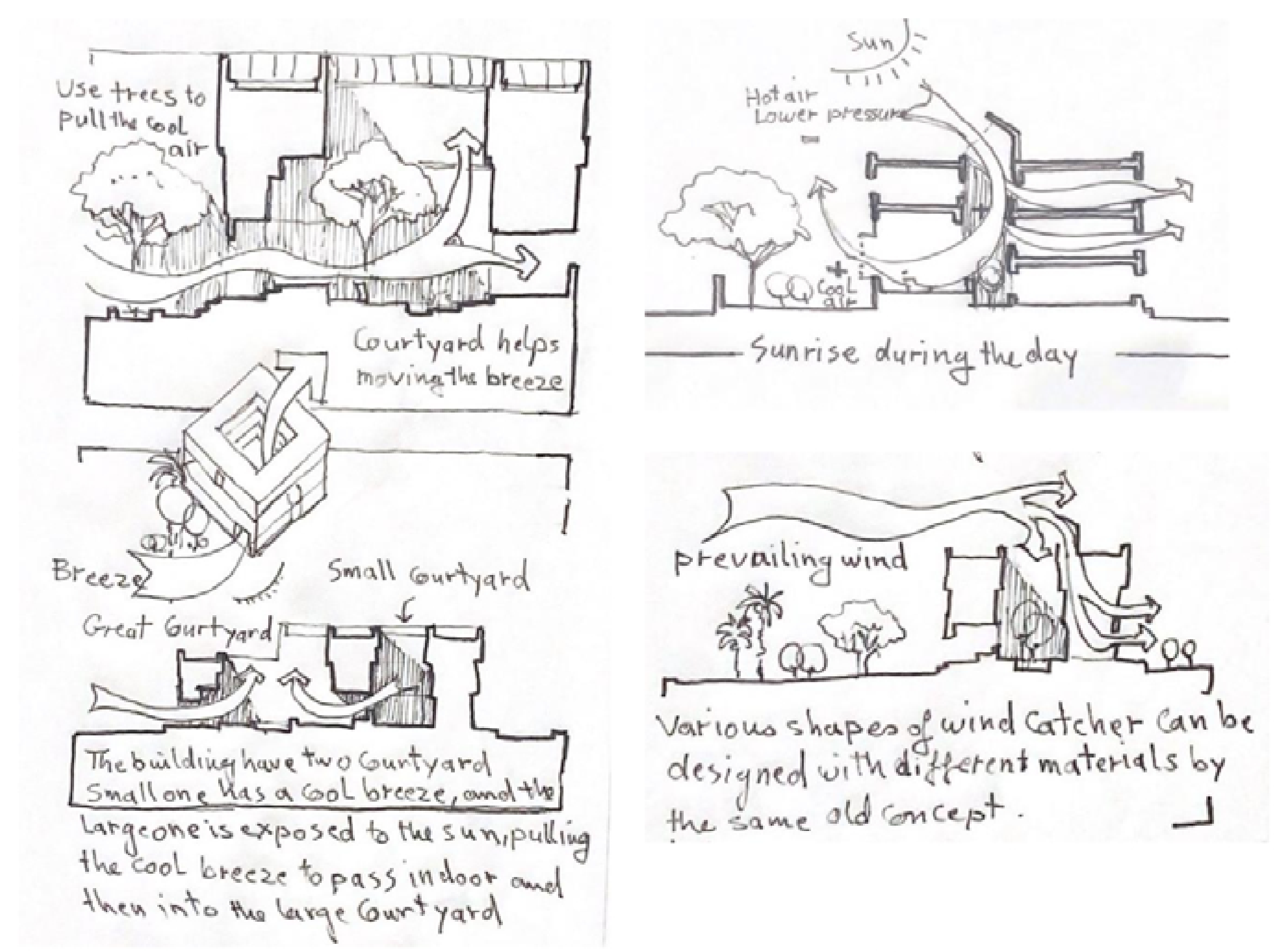
Halawa House/ Abdel Wahed El-Wakil agami beach – Alexandria Figures (10).

The Courtyard as an environmentally treated element

The courtyard is at the top of the list of traditional architectural solutions to face climatic problems, especially in hot, dry areas. Many studies have shown that it is climatically beneficial to use courtyards in housing design, especially in areas confined between latitudes 15-37 north or south of the equator. Many researchers have dealt with the use of the inner courtyard as a good architectural solution to achieve thermal comfort without using air conditioners. by using passive design, and one of the most important of these studies is the measurement of the large thermal range between night and day in Mediterranean climate areas, where the courtyard works as a store for cold air at night, and the walls and floor of the courtyard store solar energy throughout the day and return it To the open sky at night due to the difference in air pressure, the courtyard is the main factor for the movement of air, especially the cold one with high pressure, from areas that keep cold to areas that keep heat, especially during the daytime. This movement is called convection currents.

The concept of the two courtyards with different areas, one of which is narrow, does not see the sun, and the other is large exposed to sunlight as well, as shown in figures (11). The movement of cold air from the narrow courtyard to the large courtyard and the movement and absorption of air inside the building .There is a similar other concept, such as the air stack effect, as well as narrow streets that are not exposed to sunlight. When the warm air rises, it must be replaced by cool breeze air from the surroundings around it. Thus, an air movement is generated by providing a

moderately cool breeze in small spaces, such as the place in the Islamic house called (maqad), Likewise, the windcatcher used in the traditional Islamic house works to draw the cool breeze or prevailing wind into the inner spaces of the houses, various shapes of windcatcher can be designed with different materials by the same old concept as shown in Figure (12).

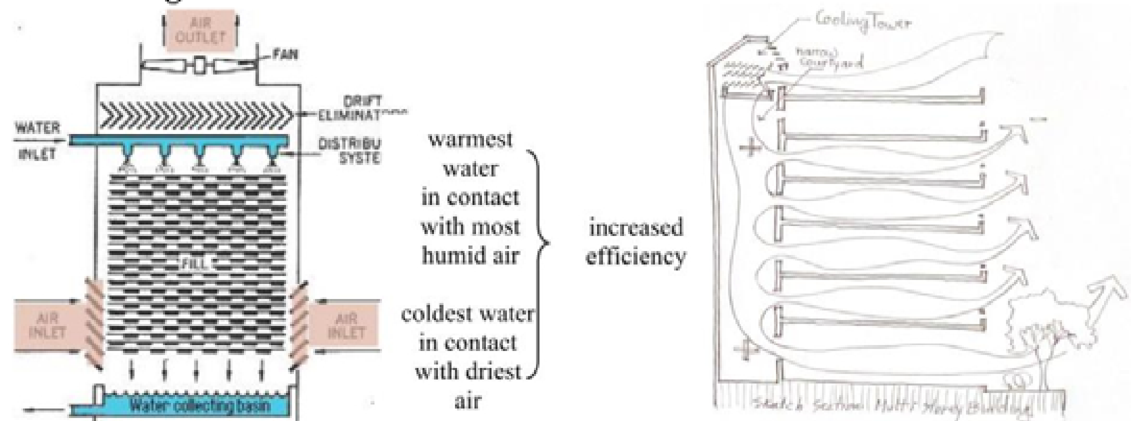


figures (11). figures (12).

Most of the sustainable architecture experiments were conducted on buildings with a limited number of floors, although buildings in cities are usually multi-storey. Where it is possible to focus at this stage on the possibility of optimal exploitation of the natural energy resources available to operate a multi-storey building in order to reduce the consumption of electrical energy to the least amount and generate the largest amount of it through solar energy and wind energy. And if the narrow courtyard is available, it can be used by controlling the air currents with the addition of an air clamp above it, with a study of the distribution and direction of the openings within the building's spaces, and the exploitation of the air pressure difference, thus the movement of cold air inside the building can be controlled.

Using Cooling Towers on multi story buildings

Water is piped to the top of the cooling unit and then broken up into droplets (to increase the surface area and thus the evaporation) by being passed through a perforated plate. In large towers, a series of such plates are arranged on top of each other. The water drips down and comes in contact with upward flowing air entering from lower side openings. For very small cooling towers, the air flow is provided by the tendency for the heated air to rise, but most larger units depend on having air blown over the plate arrangement, either by induced draft with a suction fan on top (Fig.13) or by forced draft with a blower on the bottom. Since the upward air flow is counter to the downward water flow, the coolest water at the bottom is in contact with the driest air while the warmest water at the top is in contact with the moist air, resulting in increased efficiency (air-water countercurrent principle). The chilled water collects at the bottom and from there flows to the suction of the cooling water circulation pump to be piped throughout the building.

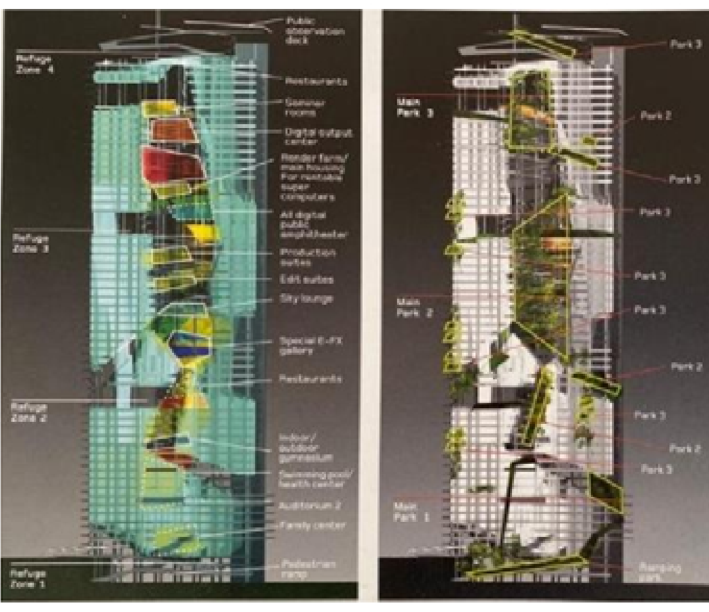


Air entering the building evaporatively cooled by sprinkled fabric wall and fountain-like structure. Fig.13

Vertical urban design within the built form

Conceptual approach vertical urbanism includes a series of vertical landscaped parks, squares and spatial sky courts linked to improve ecological nexus as well as providing a variety of outdoor open spaces for occupants.

The events plaza is designed with a retractable roof and is the largest of a number of multi -use urban squares within the site, providing a massive organic ground plane for the towers.7 , as shown in Figure (14).



Vertical urban design within the built form . 8



Fig. (14).

economy and cost

There is no doubt that the use of natural materials such as (mud, walls) in construction, especially mud bricks or compressed walls with covering in the style of the dome and the basement, may lead to a significant saving in the cost of construction, because reinforced concrete is not used, and there are many research and projects that have made this clear For example, some positive models in the Tunis region in Fayoum, Egypt, designed by the architect Adel Fahmy, as shown in Figure (13), and the cost reduction may reach almost half, in addition to achieving self-sufficiency in building from the soil material available in any site (Hassan Fathy's saying) and environmental treatment from a negative design For a green building of natural ventilation and the resulting reduction of operating costs in terms of maintenance and energy consumption, especially in the long term, the use of this system of building materials, appropriate construction method and environmental treatments with the presence of the inner courtyard of the unit achieves the maximum environmental benefit from thermal insulation, storage and disposal of sunlight and movement Air in the manner of the aforementioned two spaces, in addition to maintaining the cleanliness of the air paths and the possibility of purifying them, with the presence of umbrellas and traps to move the air and purify it in specific places in the design. all of these methods and treatments are capable of reducing the total cost (establishment, operation and maintenance), and achieving the principle of sustainability and efficiency in the use of materials and resources and the quality of the internal environment.

Security and privacy

This principle considers the existence of the courtyard inside the residential unit, especially for the Arab and Eastern community, mainly because of the security, reassurance, and privacy it provides, and the benefit and enjoyment of the external environment. From a fountain or water curtains with the presence of safety and privacy achieved by the building elements of spaces or walls (preserving the sanctity of the house) a safe outlet in the open air and makes life in the heart of the dwelling joyful and a sense of reassurance and peace as it merges completely with the living spaces, dining and kitchen on the ground floor, and the exercise of movement Daily life between these spaces is in complete freedom, separating them sensually from the external environment.

Undoubtedly, there is a clear fact that the absence of the inner courtyard of the contemporary dwelling, whether in residential units in multi-story buildings, as well as in the design of separate villa units, especially for our Arab and Eastern societies, had a great impact on the lack of a sense of security, safety and privacy, so many resort to either putting curtains and including the area of terraces to achieve privacy As well as building high walls with buildings and trees as a veil to achieve the lost privacy, which was achieved by the middle courtyard of our building, which has become a heritage.

Conclusion:

- Revitalizing the courtyard in residential homes, whether for villas or multi-story buildings, by documenting them in the building requirements, especially for the city of Alexandria.

- These lost open spaces(courtyards) whether neglected or vanished, which had a vital function, especially for residential buildings, and the interest in increasing closed spaces to accommodate the new jobs and the abundant contemporary requirements, and we lacked socially effective places, so it was necessary to search for the true identity of our lost or neglected eastern societies, and to enhance and strengthen that value, the necessity of research About the incentives to reuse these spaces, recover our Arab and Eastern identity and culture, and adopt the concept of Revitalization of the Courtyards, through the following:

- Paying attention to open spaces as a major component of housing units

- Developing requirements and building legislation to stipulate that the housing unit should be formed with an area that is not covered by the building density.

- The need to add greenery to those open spaces and achieve the principle of natural ventilation and passive design

- The courtyard inside the house, with its spatial and environmental capabilities, is considered a vital and necessary place and is used as an element of attraction to improve the climatic and social environment, increase the sense of well-being, the quality of natural life, and achieve safety and privacy.

- Passive cooling is an ideal solution to reduce energy consumption and achieve an acceptable indoor temperature in units of the residential multi story building. Stack ventilation from narrow courtyard(patio) especially in Alexandria, which has hot and humid summer months. It's one application of passive cooling that depends on temperature differences to flow the air between spaces and depend on the relation between width and height effects on airflow, the upper opening, and the side opposite of wind one direct the exhaust air out of the patio.9

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Over the years there has always been interest in historical monumental buildings and in the expressions of Baroque culture, in particular found in the perceptive and scenographic aspects from the urban dimension up to the ephemeral exhibition.
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THE COURTYARD IN MEDITERRANEAN ARCHITECTURE

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